ISSN: 1995-4875
CRFM Special Publication. No.08

Manual on Assuring Food Safety Conditions in Capture Fisheries

The SPS Project is funded by the European Union under the 10th Economic Development Fund and is being implemented by the Inter-American Institute for Cooperation on Agriculture (IICA) with the following regional Partners: the CARICOM Secretariat, the Caribbean Regional Fisheries Mechanism (CRFM), El Comité Nacional para la Aplicación de Medidas Sanitarias y Fitosanitarias de la República Dominicana (CNMSF) and CARIFORUM.

Manual on Assuring Food Safety Conditions in Capture Fisheries

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Correct Citation:

Goulding, I.C, 2016. Manual on Assuring Food Safety Conditions in Capture Fisheries. *CRFM Special Publication*. No.8. 9pp.

ISSN: 1995-4875

ISBN: 978-976-8257-32-1

Cover Photo: Outboard powered, small scale fishing vessels are typical of many Caribbean fisheries.

CONTENTS

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 contamination with bacteria viruses or parasites or 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.
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 their natural 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.
Risk	A function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard(s) in food.
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 14 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
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, which 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 structured guidelines to ensuring the safety of fish and fishery products for human consumption, in terms of best practices and official controls. 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 output of the Project was to prepare SPS Standard Manuals setting out the key food safety and quality requirements for the production and processing of fishery products exported from the Caribbean. This Manual therefore presents the practical requirements for the control of food safety hazards in the production of fishery products onboard fishing vessels.

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 the EC and US legislation, as well as Codex Alimentarius Standards.

However, additional specific requirements have been added, 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, as well as providing a technical basis for inspections by the Competent Authority responsible for official controls of food safety. It provides clear guidance as to the operating requirements for vessel operators 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 three classes of fishing vessels. Basic requirements are described for all vessels, and additional requirements are defined for freezer and factory vessels. The requirements are equally applicable to inland and marine fisheries, and for vessels operating different fishing gears. Where food safety conditions are affected by the type of fishing gear, this is described in the text. Additional sections address requirements for fishery products which present specific risks, and the need for traceability. A final section provides guidance for Competent Authorities in applying official controls to both small scale and industrial fishing vessels. A list of further reading is provided in Annex 1, and a checklist to guide operators and inspectors in the application of the Manual is provided in Annex 2.

2 POISONOUS FISH

Fishing vessel operators should be aware of the food safety hazards present due to the existence of toxins in certain species of fish as a result of the nature of the fish, rather than due to contamination (natural or otherwise) from their environment.

Certain marine fish in the region are always naturally toxic and, if caught, they should not be retained on board. 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 and 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 are safe, and fishers should always approach susceptible species with caution.

Many marine Caribbean species may be implicated in histamine development, and require special handing to ensure that they are safe. Vessels catching these species should always have facilities for chilling or icing onboard. Section 3 of this Manual describes some of the control measures which should be applied onboard. 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.)

Other species which could be implicated include:

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

More detailed information on these hazards and their control measures are provided in the CRFM Guide to Food Safety Hazards in Caribbean Fishery Products.

3 FOOD SAFETY CONDITIONS FOR FISHING VESSELS

3.1 Conditions applicable to all fishing vessels

3.1.1 Structural and equipment requirements

All fishing vessels should be designed and constructed so as not to allow contamination of the products with bilge-water, sewage, smoke, fuel, oil, grease or other objectionable substances.

Fishing vessels should be equipped with suitable holds, tanks, or containers for the holding of fishery products. These should be separate from any area where fuel, bait or other material is stored

Surfaces with which fishery products come into contact should be of suitable corrosion-resistant material that is smooth and easy to clean. Surface coatings should be durable and non-toxic. Wood is acceptable as a decking material providing that it is kept clean and in good condition.

Equipment and material used for working on fishery products should be made of corrosion-resistant material that is easy to clean and disinfect.

When vessels have a water intake for water used with fishery products, it should be situated in a position that avoids contamination of the water supply.

Vessels undertaking voyages of more than 24 hours' duration should be equipped with suitable sanitary facilities for the crew, including a flushing water closet and hand wash basin.

Holds, tanks, or containers in which fishery products are stored should be separated from the engine compartments, and from the crew quarters, by partitions which are sufficient to prevent any contamination of the fishery products. Fish should never be stored in the bilges.

Holds, tanks, or containers used for the storage of fishery products should ensure their preservation under satisfactory conditions of hygiene and, where necessary, ensure that melt water does not remain in contact with the products, notwithstanding that storage of fish in an ice-water slurry is an acceptable practice.

3.1.2 Handling on board

When in use, the parts of vessels or containers set aside for the storage of fishery products should be kept clean, and maintained in good repair and condition. In particular, they should not be contaminated by fuel or bilge water.

As soon as possible after being taken on board, fishery products should be protected from contamination, and from the sun or any other source of heat. When they are washed, the water used should be either potable water or, where appropriate, clean seawater or clean freshwater (see Section 4).

Fishery products should be handled and stored so as to prevent bruising. Handlers may use spiked instruments to move large fish or fish, provided that the flesh of the products suffers no damage.

Fishery products comprising fish species susceptible to the production of histamine (other than those kept alive) should undergo chilling as soon as possible after harvest. Time and temperature targets are specified in the CRFM Guide to Food Safety Hazards in Caribbean Fishery Product. However, when chilling is not possible, fishery products should be landed as soon as possible.

Ice used to chill fishery products should be made from potable water, clean seawater, or clean freshwater. If ice is obtained from external suppliers, it should be verified that the ice is produced from water which is chlorinated and meets the standards for potable water. Used ice should be discarded at the end of each fishing trip.

Where fish are headed and/or gutted on board, such operations should be carried out hygienically as soon as possible after harvest, and the products should be washed immediately and thoroughly with potable water or clean seawater or clean freshwater.

If not to be used for human consumption, the viscera should be removed as soon as possible, and discarded or kept apart from products intended for human consumption.

Livers, roes and other viscera intended for human consumption, should be preserved under ice, at a temperature approaching that of melting ice, or be frozen.

When vessels undertake fishing voyages of duration greater than 24 hours, they should have a programme for the systematic extermination of rodents, insects and any other pests.

Surfaces and equipment with which fishery products come into contact should be kept clean. They should be washed with potable water or clean seawater or clean freshwater and a detergent, as frequently as is necessary to avoid the build-up of blood, slime, and other materials that could contaminate the catch.

At least once per day, and after every landing event, all surfaces and equipment should be washed with potable water or clean seawater and a detergent, followed by sanitising with a suitable agent, such as a solution of sodium hypochlorite. Un-perfumed household bleach is a cheap and ready source of sodium hypochlorite. Five to 10 ml of a 15% strength bleach diluted in 10 litres of water will provide a sanitising solution of 50-100ppm hypochlorite, suitable for this purpose.

Landing of the catch should be undertaken at an authorised landing site, with facilities that meet the requirements set out in the CRFM Manual on Assuring Food Safety Conditions in Fish Landing and Processing.

Landing should be carried out in such a way that fishery products are not exposed to contamination, including contamination from harbour water, nor to ambient temperatures for a period longer than necessary.

3.1.3 Handling fish with potential to produce histamine

Special conditions are required for handling of the catches of fish species which can produce histamine (listed in Section 2).

Vessels which target such species should possess facilities for either:

a) chilling fish, using ice, refrigerated or chilled seawater, or other means of temperature control;

b) freezing fish;

Fishery products comprising fish species which are susceptible to the production of histamine should be chilled immediately after harvest. The recommended conditions[1] are that fish implicated in histamine development should not be allowed for sale for human consumption if it is landed without ice, and:

[1] Fish and Fisheries Products Hazards and Controls Guide, U.S. Food & Drug Administration, Center for Food Safety & Applied Nutrition, Fourth Edition, 2011

http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Seafood/ucm2018426.htm

- 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 fishery vessel operator should confirm, through periodic temperature monitoring, that the handling conditions onboard meets these recommendations. If they are not, there is a risk of histamine development, and the fishing operation should be revised (for example, shorter trips, or increased, or more rapid icing).

Inspectors from the Competent Authority should check fishing vessels on landing, to ensure that the operators meet the requirements set out in the CRFM Manual for the Inspection and Official Control of Caribbean Fishery Products. This inspection should always include a check on the temperature of histamine producing species. More information is provided in Section 5.

3.1.4 Personal hygiene

Crew handling fishery products should maintain a good standard of personal hygiene. Clothing and footwear should be kept clean so as not to present a source of contamination.

Hand-wounds should be properly covered by impervious protective dressings. Persons with infected wounds should not be engaged in the handling of fish or fishery products.

Crew should refrain from spitting, smoking, eating, and chewing whilst engaged in the handling of fishery products.

Crew should wash their hands with soap and potable water or clean seawater or clean freshwater after defecating or urinating, and periodically during the working day.

3.2 Additional conditions for freezer and factory vessels

Freezer vessels and factory vessels should be equipped with suitable sanitary facilities for the crew, including flushing water closets and hand wash basins. The number of facilities should meet the requirements for processing establishments (see Section 2.1 of the Manual on Assuring Food Safety Conditions in Fish Landing and Processing).

Freezer vessels should have freezing equipment with sufficient capacity to lower the temperature rapidly so as to achieve a core temperature of -18°C or less.

In the case of brine freezing of whole fish intended for canning, the vessel should have freezing equipment with sufficient capacity to lower the temperature rapidly, so as to achieve a core temperature of not more than -9°C. The brine should not be a source of contamination for the fish.

Freezer vessels and factory vessels should have refrigeration equipment with sufficient capacity to maintain fishery products in the storage holds at -18°C or less.

Storage holds should be equipped with a temperature-recording device in a place where it can be easily read. The temperature sensor should be located in the area furthest away from the refrigeration unit i.e. where the temperature in the storage room is the highest.

Rodents, insects and any other pests should be systematically exterminated in the vessel.

Vessels, even small vessels, should apply a systematic hygiene and sanitation plan covering all areas where fish is handled, and equipment, tables, fish boxes, knives and other items with which fish comes into contact. A copy of the plan, and evidence of its implementation, should be available to inspectors during inspections. The procedures to be followed are set out in more detail in the FAO Manual of Good Hygiene Practice for Fishing Boats and Fish Landing Sites in Small Scale Fisheries[2].

3.3 Additional conditions for factory vessels

In addition to the requirements set out above for freezer vessels, factory vessels should have a receiving area reserved for taking fishery products on board, designed to allow each successive catch to be separated. This area should be easy to clean and designed to protect the products from the sun or the elements, and from any source of contamination.

Factory vessels should have a hygienic system for conveying fishery products from the receiving area to the work area. Work areas should be large enough for the hygienic preparation and processing of fishery products, easy to clean and disinfect, and designed and arranged in such a way as to prevent any contamination of the products.

Hand-washing facilities for use by the staff engaged in handling exposed fishery products should use non-hand operable taps.

Storage areas for the finished products should be large enough, and designed so that they are easy to clean.

There should be facilities for the hygienic disposal of waste, or fishery products that are unfit for human consumption, directly into the sea or, where circumstances so require, into a watertight tank reserved for that purpose.

If waste is stored or processed onboard, separate areas should be allocated for these purposes. If by-products are processed on board, a separate hold should be provided for their storage.

Factory vessels should have a separate storage capacity place for storing packaging materials that is separate from the product preparation and processing areas;

4 WATER USED ONBOARD FISHING VESSELS AND LANDING SITES

4.1 Use of water

Fishing vessels (and landing sites) should 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

b) washing of whole fish

c) washing of eviscerated fish and de-headed fish

d) washing of deck, facilities and equipment

[2] Available at: http://www.fao.org/3/a-bm062e.pdf

Potable water should meet the standards set out in the World Health Organization Guidelines for drinking-water quality. These are summarised in the CRFM Manual on Assuring Food Safety Conditions in Fish Landing and Processing.

Only potable water should be used for washing fish which has undergone filleting, slicing, skinning, shelling, shucking, mincing or processing, including the shucking of gastropod molluscs.

4.2 Conditions for potable water used in the fishery sector

Before it is used in contact with fish or for manufacture of ice, where potable water is used by fishing vessels, this should be treated with either chlorination (with a suitable contact period), or with UV light.

The fishery vessel operator should ensure by periodical testing that potable water, or ice which is produced onshore and taken onboard, meets this requirement.

Where water taken onboard may be subsequently exposed to contamination, or where it cannot be confirmed that it meets the microbiological requirements, the fishing vessel operator should ensure adequate water treatment is applied to guarantee the microbiological safety. This can be achieved, for example, through chlorination.

5 FOOD SAFETY CONTROL SYSTEM

Conditions at sea, where crew safety is the primary concern, mean that food safety control systems applied during fishing operations must be robust, with a clear focus on the most important and basic requirements.

Furthermore, in many regions, such as the Caribbean, the majority of vessels are very small scale, operated by one or two fishers. Small vessels by definition have limited space and crew capacity, and their food safety systems should be designed accordingly. Two areas are however considered to be particularly important in the region; traceability for control of the ciguatera hazard, and traceability for own-checks based on time and temperature measurements for the control of the histamine hazard.

5.1 Traceability and Catch Recording

Batch separation should be practised (avoiding mixing of old and new catches) as a matter of good handling practices. This will ensure that batches can be differentiated on landing, ensuring that the oldest fish is processed first. Normally, in small scale fisheries operating a single gear with short trips (<1 day), the whole catch may be considered to be a single batch and separation is not applicable. Operators with longer trips should be able to separate catch from different days' fishing. Separation should be maintained during discharge.

For each batch of fish caught, fishing vessel operators should 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 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 record keeping at first sale is provided in the CRFM Manual on Traceability Systems for Fish and Fishery Products.

5.2 Own-checks

Freezer vessels and factory vessels should install and implement a system of Hazard Analysis and Critical Control Point (HACCP). This ensures that they meet the requirements of all potential markets, including the EU. Such a system is described in the CRFM Guidelines on Developing and Implementing HACCP Plans for Fish and Fishery Products. In vessels undertaking freezing, this would involve monitoring the time and temperatures associated with processing, freezing and frozen storage. Factory vessels that undertake additional processes will need to design their HACCP plan according to the species and process applied.

Whilst there is no requirement in any international standards for HACCP to be installed on vessels undertaking only fishing, a responsible fishery business operator will ensure that sufficient controls are in place to guarantee the safety of his product. This requires a system of own-checks, for example to ensure that temperature limits (as set out in Section 3) regarding histamine producing species are respected, and that regular cleaning and sanitising is practiced.

Other information collected in relation to histamine producing species in the Caribbean could be ambient temperature and seawater temperature. Consideration should also be given to the time of death; in some fishing methods (such as longlines and gillnets) fish dies before it is brought onboard. With high water temperatures, this could impact on the development of histamine. Therefore, the measurement of the time of death, and water temperature, could be important variables to monitor on a regular basis, as well as post-harvest temperature changes during chilling.

Modern vessel navigational equipment allows for automated logging and transmission of fisheries data, and food safety parameters such as those described here can easily be incorporated in such systems.

The information should be recorded for each batch of fishery products (however defined), and be capable of being linked to the traceability data collected on sale.

5.3 Official controls by the Competent Authority

The recommended food safety conditions onboard fishing vessels 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 vessels handling fish species associated with specific hazards should be subject to more frequent inspections than those which do not. Many vessels (especially in the small-scale sector) are multi-purpose, and this needs to be taken into account. Non-compliant operators should also be subject to more frequent inspections than compliant ones.

A suitable checklist to guide vessel inspections is shown in Annex 2. Inspection records for each individual vessel should be maintained. Non-compliances should be recorded, and followed up. Persistent non-compliance by fishing vessel operators, 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 fishing permit or licence. Collaboration with fisheries management authorities or registration authorities may therefore be required.

Competent Authorities should be aware that their country's fisheries or transport administration may have registered industrial fishing vessels which do not necessarily visit the country. However, the flag state remains responsible for official control of sanitary conditions onboard those vessels. In such cases, the Competent Authority should make arrangements with the vessel operators to undertake periodic inspections in a mutually convenient port.

Alternatively, the inspection process may be delegated to a third party, such as the Competent Authority of the port state. In the case of vessels authorised for export to the EU, this is permitted, providing that the port state is itself authorised to supply the EU market, and there exists a formal

document delegating the powers to inspect. An alternative would be to delegate the inspection to a third-party inspection body. In the case of the EU, this would have to be accredited to the standard ISO/IEC 17020:2012 Conformity assessment requirements for the operation of various types of bodies performing inspection. No such specific requirements are applicable to exports to other regions, although for the USA the Food Safety Modernisation Act does require importers to perform certain risk-based activities to verify that food imported into the United States has been produced in a manner that meets applicable U.S. safety standards.

For more information regarding the EU's specific arrangements for the official control of fishing vessels, Article 15 of Regulation (EC) No 854/2004 specifies the special provisions for fishery products[3]. More general information regarding the official control system for fishery products is provided in the CRFM Manual for the Inspection and Official Control of Caribbean Fishery Products.

[3] 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

Manual of Good Hygiene Practice for Fishing Boats and Fish Landing Sites in Small-scale Fisheries Regional Fisheries Livelihoods Programme for South and Southeast Asia, FAO, 2012
http://www.fao.org/documents/card/en/c/40f853e4-1fea-4c91-a31a-d88a72604a33/

ANNEX 2: COMPLIANCE CHECKLIST

CRITERIA	**D**	**C**	**CP SECTION**
1. Vessel Design, layout and construction			
A: Requirements for all vessels			
Vessels design, layout construction risks contamination	4		
Storage holds, tanks or containers, equipment of unsuitable design or materials (incl. wood)		C	
Bulk stowage > 1m	2		
Other equipment of unsuitable materials.	2		
Water intake location risks contamination		C	
Lack of cleaning/sanitising programme		C	
B: Requirement for vessels storing fish >24 hours			
Lack of adequate flushing water closet and/or hand wash basin	3		
Storage holds tanks, or containers do not prevent physical damage of fish	1		
Lack of adequate first aid box	2		
No separate bait storage	2		
C: Requirements for freezer and factory vessels			
Inadequate fish receiving area/ conveying system for fishery products	2		
Insufficient freezing or cold storage equipment/facilities	2		
Storage holds not equipped with properly located temperature-recording device	1		
Risk of cross contamination in areas where products are sorted, processed or packed		C	
Waste water removal from fish processing/packing areas not adequate	3		
Inadequate lighting or ventilation	2		
No wash hand basin; unsuitable taps or inadequate supply of soap and towels	2		
No separate areas for storage of i) packaging materials ii) chemicals and iii) cleaning materials used.	2		
Inadequate or unhygienic facilities for storage and disposal of waste		C	
2.General Hygiene & Operating Conditions			
A. Requirements for all vessels			
Vessels not clean or well maintained	4		
Fishery products risk of contamination, not protected from exposure to sun	3		
Fishery products/vessel washed with dirty seawater/non-potable water		C	
Ice made from non-potable water or dirty seawater		C	
Handling/storage/discharge of fishery products risks contamination/physical damage	2		
Fish species susceptible to histamine not adequately chilled		C	
Risk of contamination from fish viscera/inadequate storage of viscera	2		
Prohibited fishery products held on board	3		
Poor personal hygiene of crew handling fishery products; lack of clean clothing and footwear	1		
Hand-wounds not properly covered; risk from infected wounds	2		
Crew spitting, smoking, eating and chewing whilst engaged in fish handling	1		

CRITERIA	D	C	CP SECTION
B. Requirements for vessels undertaking fishing voyages of duration greater than 24 hours			
Lack of systematic hygiene and sanitation plan and implementation records	2		
Lack of pest control plan and implementation records	3		
Fishery products not monitored for parasites.	1		
No separation of catches from different days/hauls	2		
C. Requirements for freezer vessels			
Vessels does not have valid HACCP plan or keep implementation records.		C	
Processing/packing crew not properly dressed; clothing not clean	3		
No adequate notice prohibiting chewing, smoking eating, and spitting.	1		
Crew do not wash hands on entry to areas where fishery products are sorted, processed or packed	1		

NO. OF DEMERIT POINTS (D)	OVERALL SCORE (%)	NO. OF CRITICAL POINTS (C)	PASS/FAIL

RECOMMENDATION: