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## **DEVELOPMENT OF A FISH INSPECTION MANUAL FOR UPSTREAM QUALITY CONTROL FOR INSPECTORS AND OBSERVERS ON VESSEL, AT LANDING SITES AND IN COLD STORAGE IN LIBERIA**

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### ABSTRACT

This project endeavours to compile a fish inspection manual based on EU regulatory requirements. The compilation of the fish inspection manual is to improve the present shortcoming in the inspection system in Liberia with regard to the inspection of fish and fish products, to ensure sanitary control, harmonise the inspection system and provide tool to guide the inspectors and observers work when conducting an inspection. The inspection of fish and fish products in Liberia has lot of shortcoming which include the lack of an inspection manual to guide fisheries inspectors and observers when conducting an inspection, no fisheries products regulation and fisheries inspectors and observers lack training or skill in quality control and safety for fish and fish products. The preparation of the inspection manual for upstream quality control and safety for fish and fish products took into consideration the Icelandic inspection manual which fulfils the EU legal requirements. In this regard, the Bureau of National Fisheries should consider the use of this inspection manual to adjust or improve the inspection system and the contents of the inspection manual when drafting the fishery products regulation and the field inspection manual.

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## TABLE OF CONTENTS

<b>LIST OF FIGURES .....</b>	<b>4</b>
<b>LIST OF TABLES .....</b>	<b>5</b>
<b>1 INTRODUCTION.....</b>	<b>6</b>
1.1 Fisheries in Liberia.....	6
1.1.1 The fisheries in the National economy .....	6
1.1.2 Fisheries production .....	6
1.2 Fisheries sector overview .....	7
1.2.1 Fish handling and processing in the Liberia .....	8
1.2.2 Processing in the artisanal fisheries.....	8
1.3 The inspection system in Liberia .....	9
1.4 Rationale/Justification for the project .....	9
1.5 Objectives.....	10
1.5.1 Specific objectives .....	10
<b>2 EU LEGAL FRAMEWORK FOR FISH SAFETY.....</b>	<b>11</b>
2.1 European Union Regulatory Framework for Official Control .....	11
2.1.1 Other European Requirements.....	12
2.2 EU Laboratory Requirements.....	13
<b>3 LIBERIA LEGAL FRAMEWORK ON OFFICIAL CONTROL OF FISHERIES AND FISH PRODUCTS .....</b>	<b>13</b>
3.1 Overview of Liberia Fisheries Policy.....	13
<b>4 INSTITUTIONAL FRAMEWORK FOR OFFICIAL CONTROL IN LIBERIA ....</b>	<b>15</b>
4.1 Organizational chart of the Bureau of National Fisheries (BNF) .....	15
<b>5 INSPECTION MANUAL.....</b>	<b>16</b>
5.1 Structure of the Inspection Manual .....	16
<b>6 IMPLEMENTATION OF AN INSPECTION SYSTEM.....</b>	<b>18</b>
6.1 Prerequisite or Pre-inspection .....	18
6.2 Preparation of the inspection includes: .....	18
6.3 Documentation .....	19
6.4 Declaration of conformity .....	19
6.5 Utilisation of the inspection manual.....	20
6.6 Withdrawal of inspection services or license .....	21
<b>7 DISCUSSION.....</b>	<b>21</b>
7.1 Absence of legal framework .....	21
7.2 Lack of a fish and fish products inspection manual .....	22

7.3 Lack of skills .....	22
7.4 Lack an accredited laboratory for samples testing .....	22
<b>8 CONCLUSION .....</b>	<b>26</b>
<b>9 RECOMMENDATIONS.....</b>	<b>27</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>29</b>
<b>LIST OF REFERENCES .....</b>	<b>30</b>
<b>APPENDIX 1: EU Regulations-Fishery products .....</b>	<b>31</b>
<b>APPENDIX 2: Modelling and Risk Assessment .....</b>	<b>34</b>
<b>APPENDIX 3a: The Upstream Quality Control and Safety Inspection Manual.....</b>	<b>37</b>
<b>APPENDIX 3b: Inspection Reporting Check List.....</b>	<b>76</b>

**LIST OF FIGURES**

Figure 1: Map of Liberia (CIA World Fact book-Liberia). .....	6
Figure 2 : Liberia Fisheries Production Trends from 1950 – 2010.....	7
Figure 3: Organizational chart of the BNF, Source: Bureau of National Fisheries.....	16
Figure 4: Shortcoming/problem due to Lack of Fishery Products Regulation. ....	22
Figure 5: Analysis of shortcoming (lack of fisheries product inspection manual in the Competent Authority Division at the BNF).....	24
Figure 6: Shortcoming due to lack of skill by Inspectors and Observers. ....	25
Figure 7: Propose structure of the competent Authority Division at the BNF. ....	28

**LIST OF TABLES**

Table1: Inspection frequency and category for establishment or vessel (FisKistofa, 2010)..	20
Table 2: Action taken for Non-conformity. ....	21
Table 3: A typical Hazard Analysis plan. ....	35
Table 4: Hazard ranking to determine rating of items. ....	35

## 1 INTRODUCTION

### 1.1 Fisheries in Liberia

Liberia is a West African nation with a coastline of about 579 km. Liberia borders Guinea to the North, the Atlantic Ocean to the South, and Cote d'Ivoire to the East and Sierra Leone to the West (Figure 1). The Country has a total area of 111,370 km<sup>2</sup> of which 96,320 km<sup>2</sup> is covered by land and 15,050 km<sup>2</sup> is water. The country has a fishing ground of 186,322.2 km<sup>2</sup> within the EEZ. The country EEZ reaches to 200 NM off the coast and has significant aquatic resources approximately 15,050 km<sup>2</sup> of rivers and lakes that comprises about 14% of its surface area (Chivers, 2009). Liberia coastal zone is divided into nine regions and a number of fish landing sites can be found along these coastal zones. Bunks of the country fisheries resources are found in the western and eastern coastal zone along its coastline. The main fishing activities are in Robertsport, Monrovia, Buchanan, Greenville and Harper (Figure 1) (FAO, 2005).



Figure 1: Map of Liberia (CIA World Fact book-Liberia).

#### 1.1.1 *The fisheries in the National economy*

Fisheries are of great importance to the economy in Liberia. Over 80% of the population depends on fish as a cheap source of animal protein to enhance food security. 65% of animal protein come from fish and is cheaper than meat or chicken when compared. More than 50% of the Liberian population lives along the coastal area, where the predominant occupation is fishing (WARFP/BNF, 2012). In 2002, the fisheries sector contributed 12% of Agriculture GDP and 3.2% of the national GDP (FAO, 2005).

#### 1.1.2 *Fisheries production*

The fisheries production has fluctuated since 1980 to 2010 due to various factors (Figure 2). The fisheries production increased gradually from 1950 up to 1984 and drops in 1985 due to poor data collection and lack of qualified personnel. From 1986 production increased steadily and dropped in 1990 due to the Liberian civil war coupled with improper monitoring of the fisheries sector. Thereafter production gradually increased due to improvement in data collection up to 1999. From 2000 catch rates fluctuated up to 2010 as a result of the United Nations Mission in Liberia joint air monitoring patrol with the Bureau of National Fisheries coupled with the assignment of observers on-board vessels for data collection and improvement in the monitoring, control and surveillance system. The pre-war estimate of the sustainable yield of the continental shelf of Liberia was about 180 000 ton/year, and 40 000 ton/year for freshwater. Catch has however ranged between 10,300 and 11,700 ton/year from 2000 to 2004. A research survey in 1986 estimated the total biomass of both pelagic and demersal species at 800 000 ton (FAO, 2005). Currently there has been no estimation of the fisheries biomass of Liberia.

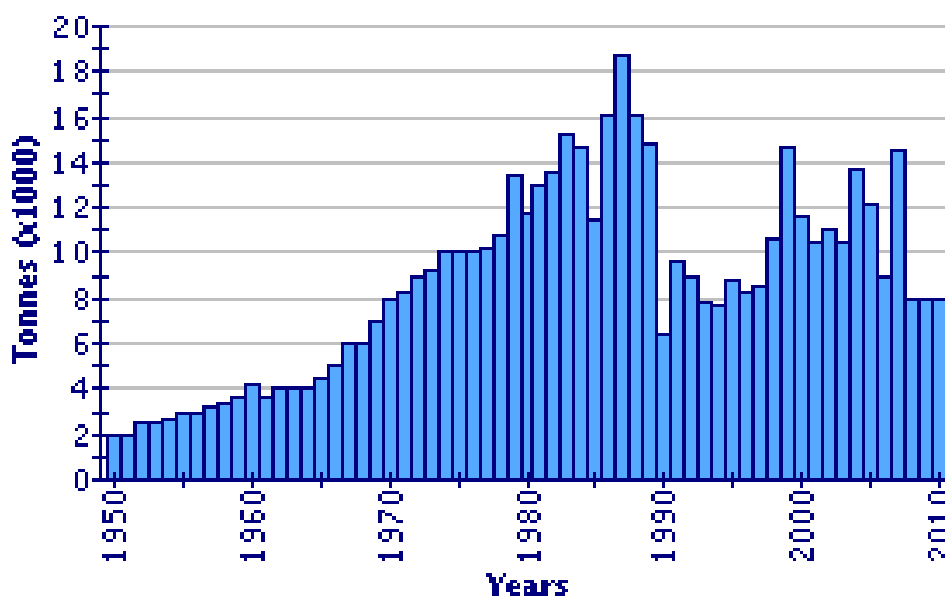


Figure 2 : Liberia Fisheries Production Trends from 1950 – 2010 Source: (FAO, 2005).

## 1.2 Fisheries sector overview

The Liberia fisheries sector is divided into three components: the marine involving the industrial and artisanal fisheries sub-sector, aquaculture, and inland fisheries.

The industrial sector is composed of commercial fishing vessels fishing in deep sea outside the in-shore exclusive zone of the six nautical miles. The fleet targets both pelagic and demersal species, using trawlers of different sizes and with different storage methods.

The artisanal fisheries is made of the indigenous dug-out kru canoes of seven meters with 1-3 crews that are powered by oar or paddle with no engine and the Ghanaian vessel with a length of 12-15 meters and driven by 15-40 horse power engines. Total number of canoes in the artisanal sector is about 3,300 and more than 11,000 fishers are operating actively from 114 fish landing sites along the coast (FAO, 2005). The artisanal fisheries sector directly employs

about 33,000 people who include the fishermen, fisher folks, artisanal fish mongers/processor and traders (WARFP/BNF, 2012) .

The inland fishery subsector is primitive. This sub-sector contributes about 25% of the fish consumed by rural dwellers. The inland fishery is an important periodic subsistence activity, using mainly traditional fishing methods and traps. The sector production is reported to be about 4,000 tonnes per annum (Chivers, 2009).

Aquaculture is subsistence and need further improvement in its activities. There is one major fish hatchery located at Klay with a number of fish ponds around the country. Culture techniques involve mainly pond-based hatchery and tilapia ponds (FAO, 2005) .

Main species in the capture fisheries are: herring, flying fish, sardinella aurita, caranx Spp, Ethmalosa fimbriata, Tuna and Tuna-like species, Sparidae Spp, Pseudolithus Spp, Lutjanidae Spp, Dentex Spp, and shrimp. Gear used in the artisanal sector: are hook and line, set net, ring and purse seine net.

### *1.2.1 Fish handling and processing in the Liberia*

The facilities for support of industrial fisheries are rudimentary. Industrial fishing vessels land their catches at the Bong Mines pier in Free Port of Monrovia. The pier is not equipped with water or fuel storage. All services are delivered by vehicles that do not comply to good hygiene practice. The road to the pier is in poor condition and the pier is located about 7-10km from cold storage facilities.

Ice usage in the artisanal fisheries sector is limited and can only be found in isolated cases around Monrovia. The artisanal catch is landed fresh on the beaches for sale either to the consumer or to a processor or wholesaler. Some of the artisanal landing is frozen onshore. There is no processing of fish and fish products within the industrial sector. There are about 32 cold storage facilities in Monrovia, with a further 22 in the very counties, but most of these are reefer containers with capacity about 20 tonnes. There are a small number of larger cold stores operated by fishing companies. The industrial catch are frozen on-board vessel and then transported to cold storage where the products are further frozen to be sold in the local market (Chivers, 2009).

### *1.2.2 Processing in the artisanal fisheries*

Most of the fish landed in the artisanal fisheries is processed locally. The catch is sold either fresh for immediate consumption or for processing. Fish and fish products are processed mainly by smoking in metal drums over a wood fire. Salted and fermented product are in smaller position. The fermented products is known as “moin–moin”.

The market chain for fresh fish in Liberia is very short with a maximum of one mediation, fishermen and processors or consumers.

Processing is still traditional in nature and is limited to fish smoking, drying and fermentation. The process chain for smoked fish is longer. The products are taken from the landing sites by road to the major rural markets from where they are distributed to towns and villages. Most of the sale, processing and distribution of fish is carried out by women. Fish is traded from depots



by women who sell them to rural dwellers in the villages and towns, usually using their foot (Chivers, 2009) .

### **1.3 The inspection system in Liberia**

Fish products from the territorial water of Liberia and intended for commercial purposes on the local market and for export are subjected to inspection (BNF, 2010). Fisheries inspectors from the BNF are involved in the inspection of all fisheries products while fisheries observers are placed on-board commercial fishing vessel to collect relevant data and scientific information including information on illegal, unreported and unregulated fishing for the management of the fisheries sector in Liberia. The inspection system in Liberia for quality control and safety of fishery products lack pre-inspection plan that is, the procedure and method are not guarded by an inspection manual to serve as a guide in the implementation for the inspection plan.

The quality and safety of fishery products in Liberia is evaluated by organoleptic measures (smell, colour, texture, and physical appearance). This can be considered as visual checks and though some level of sanitary conditions is met, the safety of the product is not secured, as the products are not tested for biological and chemical contamination at an accredited laboratory.

Fisheries Inspection in Liberia manly involves data collection in regards to the Fisheries Management. Sanitary conditions of the products are not evaluated nor controlled as regulatory requirements are not available. Due to the lack of legal backup, the fish inspectors and observers lack authority to react to suspicious or unsafe fish products. This also results in lack of guidance through proper work procedures or an Inspection Manual that can be the key for harmonizing the fish inspection system in Liberia (Chivers, 2009).

The inspectors and observers also lack training and clear guidelines in Good Hygiene Practices (GHP) and Hazard Analysis of Critical Control Points. Good hygiene practices at the landing sites and collecting samples for testing are normally not followed. Inspectors and observers need to be provided with training in how to conducts HACCP inspection. An understanding of HACCP plan is seen in appendix 2 of this document. According to (Harrigan & Park, 1991) HACCP provides a good framework for bringing hazard expertise to endure on Manufacture, distribution and storage of food products. It requires a thorough knowledge of food hazards and training of all staff in all aspect of hygiene.

### **1.4 Rationale/Justification for the project**

Fish and fishery products are nutritious, healthy and an important source of food and livelihood for over 50% of the total population of Liberia. However, if the food production in Liberia does not fulfil the basic food safety criteria's, the fish products cannot be considered very healthy for the population. Beside, it will not be able to gain valuable export earnings for the country. If Liberia is to be accepted to export fishery products to the European market, the country must satisfy the EU legal regulatory requirements for export. Liberia has not met these criteria yet (WARFP-Liberia, 2012) .

The current fish inspection system in Liberia lacks standardised procedure for securing the safety of fish caught and processed in Liberia. According to (Huss, 2003), “every stage from the initial production to processing or preservation, storage, marking and consumption must be included in a food quality and safety program”. Due to the present condition of the inspection system, the project is relevant to compile a fish inspection manual for up-stream quality control and safety for fish and fish products on vessel, at landing sites and in cold storage in Liberia. The Inspection Manual is based on regulatory requirement and scientific principles and can provide necessary information on quality control mechanism and assessment of establishments and vessels in terms of seafood quality and safety in Liberia.

The inspection manual will also enhance the work of fisheries inspectors and observers and to provide a systematic approach to all inspection activities carried out by the Competent Authority Division. The manual can furthermore be used as a guide in the drafting of the fisheries product regulation equivalent to the requirements of the European Union. Implementation of the manual will provide the fish inspection management a key tool to harmonize and strengthen the inspection system as a whole.

## **1.5 Objectives**

The main objective of the project is to compile a fish inspection manual to improve the present situation in the inspection system in Liberia with regard to using standardised fish inspection manual and to suggest ways to strengthen the inspection system in Liberia to gain access to valuable marketing areas.

### *1.5.1 Specific objectives*

1. To list the main EU regulatory requirements for food safety with emphasis on fish upstream quality control and safety in order to provide instructional procedures and methods for assessing fish establishments and vessels.
2. To get an insight to the implementation of official control in Iceland in regards to fish and fishery products safety.
3. To create an inspection manual for the Liberia inspectorate system based on EU regulatory requirements.
4. To make recommendation to simplify the inspection procedures in Liberia and secure homogeneity or harmonisation between the fish inspectors’ and observers’ work.

## 2 EU LEGAL FRAMEWORK FOR FISH SAFETY

### 2.1 European Union Regulatory Framework for Official Control

“To export seafood into European Union (EU), the European Community has laid down joint conditions for imports of foodstuffs of animal or plant origin, taking into account the need to protect consumer health and to protect the territory of the Union from the introduction of animal or plant diseases. The Europeans established the European Economic communities, a commission to harmonized free trade among the member states by laying down detail rules and regulations as an essential aspect of internal and external markets in order to contribute significantly to the health and well-being of its citizens, and to their social and economic interests” (Blaha, 2008).

The European Commission’s Directorate-General for Health and Consumer Protection (DG SANCO) is responsible for food safety in the European Union. The EU imports rules for fishery products seek to guarantee that all imports fulfil the same high standards as products from the EU Member States, with respect to hygiene and consumer safety and the animal health status. “Hence, it is very important that interested countries and business should understand the fundamental principles and philosophy of the European Food Law, which form the basis for EU import rules in order to ensure that imports can take place smoothly and efficiently” (Blaha, 2008).

A Competent Authority (CA) in a country is required to assure compliance to three types of obligations to fulfil the following EU regulatory requirements as is being stated by Regulations (EC) No 178/2002, (EC) No 882/2004, (EC) No 854/2004, EC No 852/2004 and EC No 853/2004

- Obligations of resources: i.e. Instruments of production, Conditions of handling/processing, HACCP and Pre-requisite programmes, and Traceability;
- Obligations of results: Safety levels of the products (i.e. Histamine, Contaminants, and Micro levels);
- Obligations of control: i.e. Regulatory verification effectively implemented by the CA, Strict control of certification of products.

These regulatory requirements are further listed below and interpreted in the inspection manual for official control on the basic of their fulfilment with respect to EU hygiene package. Details summary of these Regulations are provided (Appendix I).

EC No 852/2004 (European union (EU), 2004) regulatory requirements on hygiene

- Applies to all stages of food and feed chain
- Establishes general requirements for all food business operators (primary production included)
- HACCP based system - all non primary producers
- National guides to good practice
- Registration/approval

EC No 853/2004 (European Union (EU), 2004) regulatory requirements on specific hygiene rules for food of animal origin relevant to:

- Specific hygiene rules for food of animal origin
- Approval of establishments

- Health and identification marking
- Imports

EC No 854/2004 (European Union (EU), 2004) Regulation on official controls on foods of animal origin on:

- Organisation of official controls
- Approval of establishments
- Audit-inspection
- Imports: certification requirements

EC No 2073/2005, (European Union (EU), 2005) Regulation on microbiological criteria for food and feed production on:

- Food safety criteria (Salmonella, Listeria, histamine and Micro levels)
- Process hygiene criteria during production process

EC No 2074/2005 (European Union, 2005) laying down implementing measures for certain products under Regulation EC No. 853/2004 and EC No. 854/2004 such as:

- Fishery products
- Visual inspection on parasites
- Total volatile basic nitrogen (TVB-N)
- Testing methods for marine biotoxins

### 2.1.1 *Other European Requirements*

The European Union (EU) contingency plan /Yearly inspection plan provide provision for the use of EC no.882/2004 and 178/2002. This regulation re-organises official controls of food and feed so as to integrate controls at all stages of production and in all sectors. The Regulation defines the European Union duties as regards the organisation of these controls, as well as the rules which must be respected by National Authority responsible for carrying out the official control. This include coercive measures adopted in event of failure to comply with community law.

Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.

This Regulation is designed to fill in the loopholes in the existing legislation concerning the official control of food and feed and to harmonised Community approach to the design and implementation of national control systems.

The purpose of this Regulation is:

- To prevent or eliminate risks, which may arise, either directly or via environment, for human beings and animals, or reduce these risks to an acceptable level, and
- To guarantee fair practices as regards to trade in food and feed and the protection of consumers` interests. This including labelling of food and feed and any other form of information intended for consumers

EC No. 178/2002 (European Union (EU), 2002) provide the basic principle to the responsibilities of the EU Member states` authorities , describes in more detail how these principles of food law must be interpreted and implemented. Official controls carried out by

Member states must enable them to conduct verification and ensure compliance with national and community rules on food and feed.

In the EU contingency plan, the Community define these controls as a function of identifying risk, the experience and knowledge gained from previous control, the reliability of the controls already carried out by the business operators concerned and suspicion of possible hazard and non-compliance. The plan clearly identifies the people involved and the circumstances under which the plan is initiated. All staffs in the national control have to be informed of the existence and purpose of the plan. People involved in the plan have received training to familiarise them with the contents of the plan and arrangements in the plan. Further training involving simulation exercises is proposed (Food safety Authority of Ireland, 2012).

The contingency plan describes the crisis planning measures which have been put in place to ensure that national competent authority officials are ready to respond effectively and in a timely, coordinated and coherent manner to a food safety crisis. Hazards requiring consideration and possible management may be identified by the Member states national competent authority routine controls on food production. This can also be notified by an external source, for example, through the EU Rapid Alert System for Food and Feed. The information is provided within 24 hour through emergency phone number and includes contact details for government departments, competent authorities (official agencies) and other Member States (Food safety Authority of Ireland, 2012).

## **2.2 EU Laboratory Requirements**

Official laboratories are laboratories which operate under the aegis of a Government department or a competent authority to carry out the analysis of samples taken during official controls. Official laboratories are designated by a Government department in national legislation or through an administrative procedure.

Regulation 882/2004 (European Union (EU), 2004) Article 12(2) requires official laboratories to operate and be assessed and accredited in accordance with the European standards, ISO/IEC 17025.

The requirement for food laboratories to maintain/pursue accreditation is included in the service contracts with the competent authorities responsible for these laboratories (Food safety Authority of Ireland, 2012).

## **3 LIBERIA LEGAL FRAMEWORK ON OFFICIAL CONTROL OF FISHERIES AND FISH PRODUCTS**

### **3.1 Overview of Liberia Fisheries Policy**

The current regulation makes provision for compliance and enforcement in the management of the fisheries stock of Liberia. The regulation is kept as general as practicable to catch and other management measure such as illegal, unreported and unregulated (IUU) fishing. This regulation does not cover or define any standardise work procedure and method to inspect vessel and establishment on the sanitary condition of the fishery products.

The fisheries regulation covers the following sections but not limited to:

1. The fisheries conservation and management plan
  - Providing principles for fisheries management
  - Conservation and management measures
  - Fisheries management plan
  - Illegal fishing gear and methods
2. Requirements for fishing and operating fishing vessels  
Compliance with these regulations and applicable license or authorisation unlicensed activities prohibition.
3. Licenses and authorisations-requirements and procedures
  - Licenses and authorisation required;
  - Standard for approval or renewal of licenses and authorisations; and
  - Precondition for license issuance to local industrial fishing and foreign vessels.
4. Condition and requirements for fishing, transshipment and the use of ports
  - Conditions for fishing
  - Conditions for industrial fishing
  - Reporting requirements for Industrial and semi-industrial vessels
  - Conditions for artisanal fishing vessels
  - Requirements for transshipment
  - Deployment and of a fish aggregating device
  - Inspection of foreign fishing vessels in port and denial of the use of port.
5. Monitoring, control, surveillance and compliance
  - Monitoring, control, surveillance responsibility and functions
  - Fishery inspectors-authority and power
  - Fisheries observer function and authority
  - Appointment

Notwithstanding, these regulations are by no mean in practice as it relate to the fulfilment of the above mentioned EU regulatory requirements for export of fisheries products to the European markets. There are currently no hygienic requirements in regards to handling, processing and distribution of food or fish. There is provision Under the West Africa Regional Fisheries Project (WARFP), design to include the creation and certification of a Sanitary Competent Authority as an element of its Sub-Component 3.2-Fish product Trade infrastructure, information and systems in connection with the Regional Minimum Integrated Trade Expansion Platform to have the BNF as the competent Authority. In this arrangement, there is an arrangement to draft the fisheries product regulation, construct accredited laboratory and training of staff to ensure official sanitary control of fishery products for export.

## 4 INSTITUTIONAL FRAMEWORK FOR OFFICIAL CONTROL IN LIBERIA

### 4.1 Organizational chart of the Bureau of National Fisheries (BNF)

The Minister of Agriculture (MOA) has responsibility on the fisheries sectors of Liberia through an effective organizational structure. This is manned by staff capable of planning, coordinating, implementing, monitoring and evaluating the fisheries sector (Figure 3).

The Coordinator of the Bureau of National Fisheries is the head of the bureau and charged with the management and regulatory enforcement and compliance of the fisheries in Liberia. The Coordinator is technically assisted by the Deputy Coordinator, who is responsible for providing technical support to the various divisions within the Bureau of National Fisheries such as the Division of Marine fisheries, the Division of Research and statistics, and Aquaculture and Inland fisheries.

The division of marine fisheries is the division responsible to coordinating all activities relating to monitoring, control and surveillance on capture fisheries which include the below:

- Enforcement of both artisanal and industrial fishing activities via the regulation relating to fisheries, fishing, related activities for marine fisheries sector in the Republic of Liberia.
- License industrial vessels; register artisanal vessel.
- Oversee the import and export of fish into and from Liberia.
- Collect catch data and submit it to the statistics division.
- Collect general information on landing sites in Liberia
- Implement monitoring, control and surveillance (MCS)

The marine division keeps records and submit reports that are delivered to the deputy coordinator on monthly and quarterly basis. The division also coordinates with the Monitoring, Control and surveillance (MCS) focal person of the West Africa Regional Fisheries Project (WARFP) on MCS matters.

The division of statistics and research is the division responsible to compile and analyse all fisheries data and provide research planning to the BNF. This division also submit monthly and quarterly reports to the Deputy coordinator.

The division of aquaculture and inland fisheries coordinate fish farming and fresh water fisheries in Liberia. This division provide technical services and regulate fish farms production. This division submit monthly and quarterly reports to the Coordinator through the deputy Coordinator. These various divisions interact with fishing companies and vessels, fish depot/cold storage, artisanal fishers, landing sites and fish processors to ensure compliance and enforcement in the fisheries of Liberia.

In the organisational chart below, the competent authority structure is not inclusive in the chart. Recommendation has been suggested in this document to include this structure into the organisational chart of the BNF and to provide support for the division to be functional in order to ensure official control in the sanitary aspect of the fisheries products in term of quality and safety.

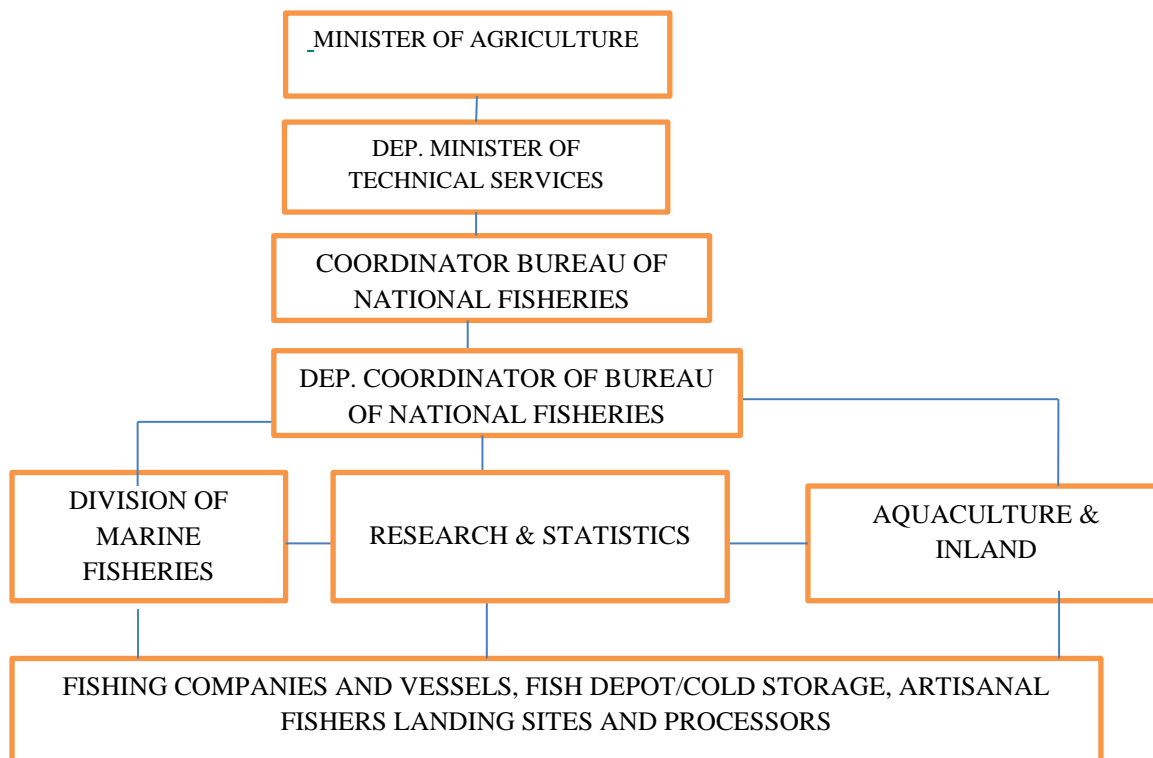


Figure 3: Organizational chart of the BNF, Source: Bureau of National Fisheries.

## 5 INSPECTION MANUAL

### 5.1 Structure of the Inspection Manual

Official control for inspection of fishery products is essential to protect the consumer's safety and well-being. This is realized by the European countries and therefore they limit their import from countries that can guarantee sufficient official control on handling, processing, storage and distribution of all fish products. In order to have official control for fish product quality and safety, proper work procedures to guide the fish inspectors or observers is needed. The requirements of these work procedures must be based on legal documents. When these work procedures are compiled together they form an Inspection Manual. The inspection manual is a guide to carry out official control in terms of quality and safety of the fishery products from the catching ground to the processing facility up to the consumer. In accordance to the objective of this project, an Inspection Manual and Checklist were compiled (Appendix 3a) based on the EU legal requirements on official control. Interpretations of the legal requirements were extracted from the EU regulation on food of animal origin and placement on the European markets and from experts review discussion on possible hazards control mechanism. This includes observation on fish handling, processing or preservation, safety and quality management system in establishment and vessel. The fish inspection manual is divided into four sections. Section 1, gives an overview of the suggested fish inspection system in Liberia. It furthermore explains the communication between participants of the system and explains how licenced producers are evaluated and handled. Section II, deals with the quality control system of the licensed vessel or processing establishment and how the system is evaluated. Section III, describes how the premises of establishments and vessels are evaluated, while Section IV takes into account the processing part of the vessel or establishment. Section two to



four of the Inspection manual is a compilation of work procedure where each procedure contains the following:

### **Interpretation**

As Regulatory requirements are not always clear to a layman, therefore it is necessary to interpret the requirements to make them clear. The interpretation must though be such that in case of dispute the interpretation must hold in a court of law.

**Work Procedure:** explains what is to be inspected and how the inspection should be conducted.

**Method of inspection:** The method to be used is explained. These methods are: observation, measurement and documentation checks.

The observation is based on what is stated in the inspection manual as it relate to non-conformity and not the personal judgement of the inspector. Example: examination, comparison, checks and measurements.

Measurement is process of acquiring the extent, quality or the dimensions of the observation with the legal requirement. Documentation Check involves confirming if required documents are available, records kept etc. The Blueprints of the processing facility or vessel, its lay-out including water pipes and outlets should be taken into consideration. Here the inspector should only follow the inspection manual and check if everything is in place. For example: cross contamination as regard the lay-out of the process facility or vessel handling fish.

**Limits:** state what the tolerance limits are for each item inspection category and informs when an inspections is to be rated as deviant from legal requirements.

**Explanation:** this shows the limit that result in providing guidance on how to arrive at the correct evaluation and is based on the severity and risk of the associated hazard to the product involve.

**Evaluation:** non-conformities if items exceed set limits.

The rating of non-conformities were derived from the Icelandic inspection manual which fulfil the EU regulations that analyses potential hazards based on type and severity. Also considered was the Modelling and risk assessment (Appendix 2). Generally about hazards associated with each item were strongly considered so that the score applied accurately show its overall measure or significance relating to the hazard. Inspection of a vessel or establishment depends on the potential of the hazard involved then a frequency of visitations is applied. Scores are given base on the hazard. If an establishment or vessel gets Non-conformity, the following are category of evaluation: Deviation (**D**) or serious deviation (**SD**) base on the frequency of inspection in Table 1 and 2. The evaluation of a vessel or establishment by an inspector and observer shall be on the basis of the evaluation rating mentioned in the inspection manual and not by the inspector's and observer's judgement as a guide to Non-conformity.

Definition:

**Serious deficiency (SD):** any condition or practice that can cause immediate threat to the consumer.

**Deviation (D):** Any condition or practice that can lead to fish or fishery products becoming unsafe but does not cause any immediate threat.

## 6 IMPLEMENTATION OF AN INSPECTION SYSTEM

### 6.1 Prerequisite or Pre-inspection

Before an inspection can be conducted the inspector must familiarise themselves with the establishment to be visited. Therefore the inspector shall review the previous inspection reports, Documentation on accreditation from the Competent Authority, lay-out including water pipe and outlet for cross contamination in the establishment or vessel, process flow diagram, product description, work description for responsible persons in the quality control system, Sampling plan in accordance to the nature of the process and based on verifying the quality control of the process, and any other available information.

### 6.2 Preparation of the inspection includes:

- Nomination of inspector or inspection team
- Definition of the objective of the inspection
- Familiarisation with the fishery business operator`s file, including description of company, premises or vessel, the process, the product specifications, market of destination.
- Preparation of necessary checklists for verification of essential aspects
- Arrangements for transport of inspection team and transfer of any samples to testing laboratory
- Arrangement of needed equipment for the inspection (such as thermometers, rapid tests, clip boards, worksheet, flash light, cameras, sampling equipment) and check that they are working.

Inform the laboratory services to be ready to receive samples.

Initial meeting and starting conference

The inspector explains the reason for the inspection and how it will be conducted.

The aim of the starting meeting is:

- For the inspector to introduce him or herself to the management;
- Inform the management the purpose and procedure of the inspection;
- To identify the establishment area, documents and personnel likely to be involved in the inspection;
- Request for information relating to the production system and condition.

This has to be detailed (including practical and administration) of the inspection shall be discussed with the management of the establishment or vessel at the start of the visit. As a general rule when inspecting an establishment or vessel, quality assurance manager should accompany the inspector. If the inspector is not familiar with the processing facility it is necessary to do the first inspection with a responsible person from the fish establishment or

vessel quality personnel or with someone that he or she points. That person shows the inspector the processing facility and introduces the inspector or observer to all key people in the fish establishment or vessel. After being shown the processing facilities the inspector gets a place where he or she can review the quality control manual and work procedures. All documents regarding the own checks especially the quality control manual and inspection reports are inspected. Housing, equipment, process flow and housekeeping and the overall customs of the employees are inspected. The inspector interviews key personals in the process regarding how they conduct their work.

### 6.3 Documentation

The inspection is conducted with a checklist and a corrective action form (Appendix 3b). During inspection there will be a feedback of the performance of the establishment or vessel done by the inspector. Non-conformity or deviation will be underlined and agreed where possible, the cause will be identified and corrective action taken or suggested. The inspection reports must be structured and produce in a standard procedure giving the results of the inspection. As discuss in the document, Methods of Risk Assessment provide the different evaluation in the event of potential hazard in term of deviation. The inspector or observer is to use the evaluation in the inspection manual and apply the different condition that may occur to rate the establishment or vessel potential hazards.

### 6.4 Declaration of conformity

When the inspector proceeds with the inspection, he or she will put a mark between the appropriate check when the inspector or observer notice a deviation. He or she will put an **X** or no mark in the evaluation checklist if the inspection of the item or items proofs conformity with requirements. For a deviation he or she writes **D** and for a serious deviation is an **SD**. The result of the inspection will be presented using the checklist (Appendix 3b). The inspector brings with him the results from last inspection that was conducted in mentioned fish establishment or vessel. Only items from the inspection manual are inspected. Things that are to be inspected for each processing license are: building, equipment, process flow, sanitation and quality control system. The processing and handling of fish and fish products license indicates the kind of process that is allowed at the premises or place of operation. If some of the indicated items are not present according to the license, the inspection will not be conducted and the inspector informs the Competent Authority Division (CAD) within 24 hours.

The inspectors must consider if the CAD or BNF has given longer time period for correcting certain deviations and if so the inspectors cannot judge the item if that time period has not past.

A corrective action report must be written and indicated on the check list that explains to the producer why it is considered deviant and set a time frame for corrective actions. All deviations are shown to a responsible person from the establishment or vessel and he or she is given a chance to comment. The inspector shall listen to his comments and evaluate if it changes the judgement. The inspector however, always has to observe visually the things he or she evaluates.

The inspector must verbally explain all observed deviations and confirm that the observation was corrected and that there is no misunderstanding involved that could alter the judgement. The inspector must fill out his inspection record at the processing facility or vessel.

The inspection report must contain the following information:

- Name of the establishment or fishing vessel
- Establishment approval number
- Date of inspection
- Name of inspector
- Person responsible for the establishment or vessel quality control
- Address of the establishment

## 6.5 Utilisation of the inspection manual

With the legal document for fishery products regulation not yet fulfilled by Liberia, the legal document to compile the fish product inspection manual is the EU regulations which the inspection manual is linked to as a legal document for official control. The inspection manual is to provide inspectors and observers with the legal framework and procedures necessary to be employed when applying the fish regulations. The inspection manual will contribute to the uniformity of the interpretation and consistency in the application of the regulations. The manual provides more detail explanation than is as possible in the regulation showing the link to the regulation but does not by itself have any legal standing. The inspection manual is a management tool to harmonise the inspector and observer work in terms of evaluation. This will ensure that each inspector and observer follows the same procedure and if there are differences in the work, that inspector is provided training to improve. The inspection manual procedures and methods provide a step-by-step process necessary to harmonise the inspector and observer work. The inspection manual is also linked to the check list which is then used by the inspectors and observers to confirm non-conformity and instruction on how to document all non-conformity. The results from the use of the inspection manual are then used to evaluate the establishments or vessels handling and preservation or processing fish. A rating system is assigned based on the defect as either a deviation or a serious deviation where a frequency of visitation is applied to ensure that corrective action has been taken to solve the defect Table 1 and 2.

Table 1: Inspection frequency and category for establishment or vessel (Fiskistofa, 2010).

Definition	Class	Frequency (visits/year)	Establishments/Vessels
No defects observed in 6 consecutive visits and confirmed by CAD.	A	6	Every third trip
No serious defects observed but some minor defect.	B	12	Every trip
No serious defects observed that does not constitute an immediate threat to fish product.	C	24	Every trip
A serious defect is observed that might cause an immediate threat to fish product(s) involved. No license is given or license revoked.	D		

In Table 1, category (A) means the establishment or vessel is in an acceptable condition, and it is not necessary to inspect the establishment or vessel very often. Category (B) means the establishment or vessel is doing but there are some minor defects but must fix them with a

specify time frame. Category (C) implied that the establishment or vessel has some serious deviation and more attention should pay to fix those serious deviations or place them in category (D) and require making decision for closed of such an establishment or denial license for fishing.

In Table 2, the classification of establishments or vessels in table1 is based on the Non-conformity where the establishment or vessel can be classified as (A, B, C, and D).

Table 2: Action taken for Non-conformity.

	<b>Deviation (D)</b>	<b>Serious deviations (SD)</b>
Action carried out by the processor	Deviations adjusted without delay	Deviation adjusted without delay
Actions carried out by Inspector or provincial offices	A recommendation report is filed at the provincial offices or by the inspector and an original copy given to the producer.	A recommendation report is left with the producer and a copy filed at the CAD or BNF. The holder of the license is informed of the seriousness. CAD or BNF decides what immediate actions need to be taken in order for the process to continuous.

## 6.6 Withdrawal of inspection services or license

An establishment or vessel as is being mention above, evaluated and rated as **D** may or should be closed down if the **Serious Deviation (SD)** deems to affect consumer health. Immediately the establishment or vessel must fix the deviation posting the risk by the decision of the head of the Competent Authority Division in this case BNF. **C** and **B** shall be allowed to operate but are given time to fix the deviation then moving **C** to **B** and **B** to **A** level. License for category **D** should be withdraw, if the serious deviation is not attended to immediately. The inspection manual is used to create the yearly inspection plan Base on the inspection result relating to non-conformity. Frequency of inspection and category for establishment are based on the inspection result which the BNF can adopt to implement its yearly inspection plan.

## 7 DISCUSSION

The overall picture of the development of a fish inspection manual for Up-stream Quality Control and Safety for fish and fishery products on vessel, landing sites and in cold storage in Liberia is being derived from a comprehensive view as it relates to the present situation in the inspection system. Liberia is a country that is rich in marine resources yet the management, quality and safety of the fishery products being produced is not safe for human consumption. Fishery products from Liberia have not been approved by the EU for export into the European markets. The gap has created shortcoming in verifying fishery products for export. That is the inspection system with regard to quality control and safety of the products has serious limitations and weaknesses. These limitations and weaknesses are seeing below along with analyse to show the problems in the fishery products inspection system in Liberia.

### 7.1 Absence of legal framework

The legal framework for implementation of food safety management programme in Liberia does still not exist. Therefore the issues of due diligence are out of best practices with regard

to seafood quality and safety. The existing fisheries regulation does not cover fishery product requirements therefore; the Competent Authority Body cannot function as such according to EU requirements. Personnel's lack skills in quality management and in addition there is need for a functional and an accredited Laboratory to confirm safety of the fisheries products.

## 7.2 Lack of a fish and fish products inspection manual

Lack of inspection protocols as there is no fishery inspection manual to guide the inspectors and observers conducting inspection for official control. This is realised in the harmonisation of the inspectors and observer report.

## 7.3 Lack of skills

Inspector and observer lack skills in risk assessment or HACCP approach since knowledge in quality management training is missing. The current inspector's qualification is limited to high school certificate while fisheries observers are college graduates. These groups however, are not train to conduct hazard analysis or risk assessment inspection. The inspector's checklist and observer's logbook lack appropriate operating practices as no part of the logbook and checklist conform to sanitary requirements.

## 7.4 Lack an accredited laboratory for samples testing

As a result of the above mention situation and as part of the criteria to export to the EU markets, the absent of an accredited laboratory services is a serious impediment to the Liberian fisheries sector. This also put the local consumer's health at risk.

Detail analysis of the above mentioned facts can be seen in Figures 4, 5 and 6.

Problem/shortcoming analyse within the inspection system

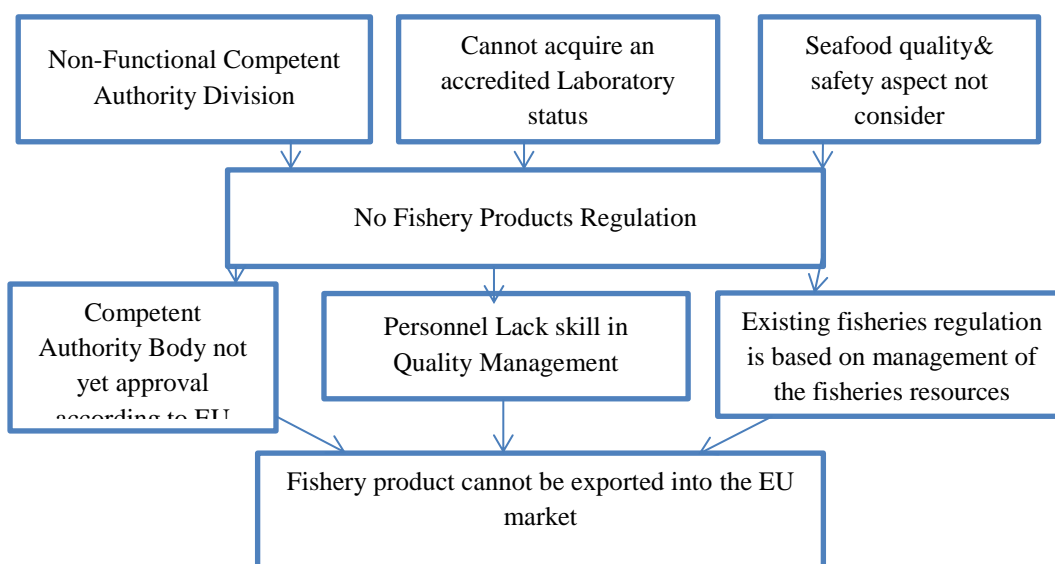


Figure 4: Shortcoming/problem due to Lack of Fishery Products Regulation.

The lack of a fishery products regulation and an inspection manual for official control in the Liberia fisheries inspection system have not only proven to be a threat to the official control system but have put Liberia fisheries into a situation that the country cannot export fishery products to EU markets. In order to export fishery products to the EU markets, Liberia must fulfil all EU requirements as is been done by the Icelandic fish quality control and safety Authority for which this inspection manual contents are based. The Icelandic legal Frame for official control has proven successful due to fishery products regulation, an Inspection manual, institutionalised system, qualify and train personnel in HACCP analysis that cater to risk assessment in seafood safety and quality assurance. All activities concerning seafood production, handling, processing and export in Iceland are back by laws. The Icelandic legal framework for official control is the tool which provides the necessary Authority for fish inspection program to enforce standard concerning management, safety, reporting structures, compliance, and enforcement. The Icelandic inspection manual (Fiskistofa, 2010) and the Canadian Fish Inspection Agency (Canadian Food Inspection Agency, 1999) inspection manual Interpretation, methods and procedures of inspection and evaluation are based on the legal frame work similar to EU Regulations to assess establishments and vessels conforming to official control. The inspection manual be developed strictly follow all legal aspect of the above mention inspection manuals for its contents. A brief understanding of the official control system for seafood inspection in Iceland are mentioned below and when compared to Liberia official control, is far improve and well organised. A pre-organise inspection plan is design before an inspector conduct inspection on-board vessel or in an establishment. During an inspection exercise, the inspector is provided with the necessary gears and equipment to collect sample, measure weight of species and write a report on the inspection.

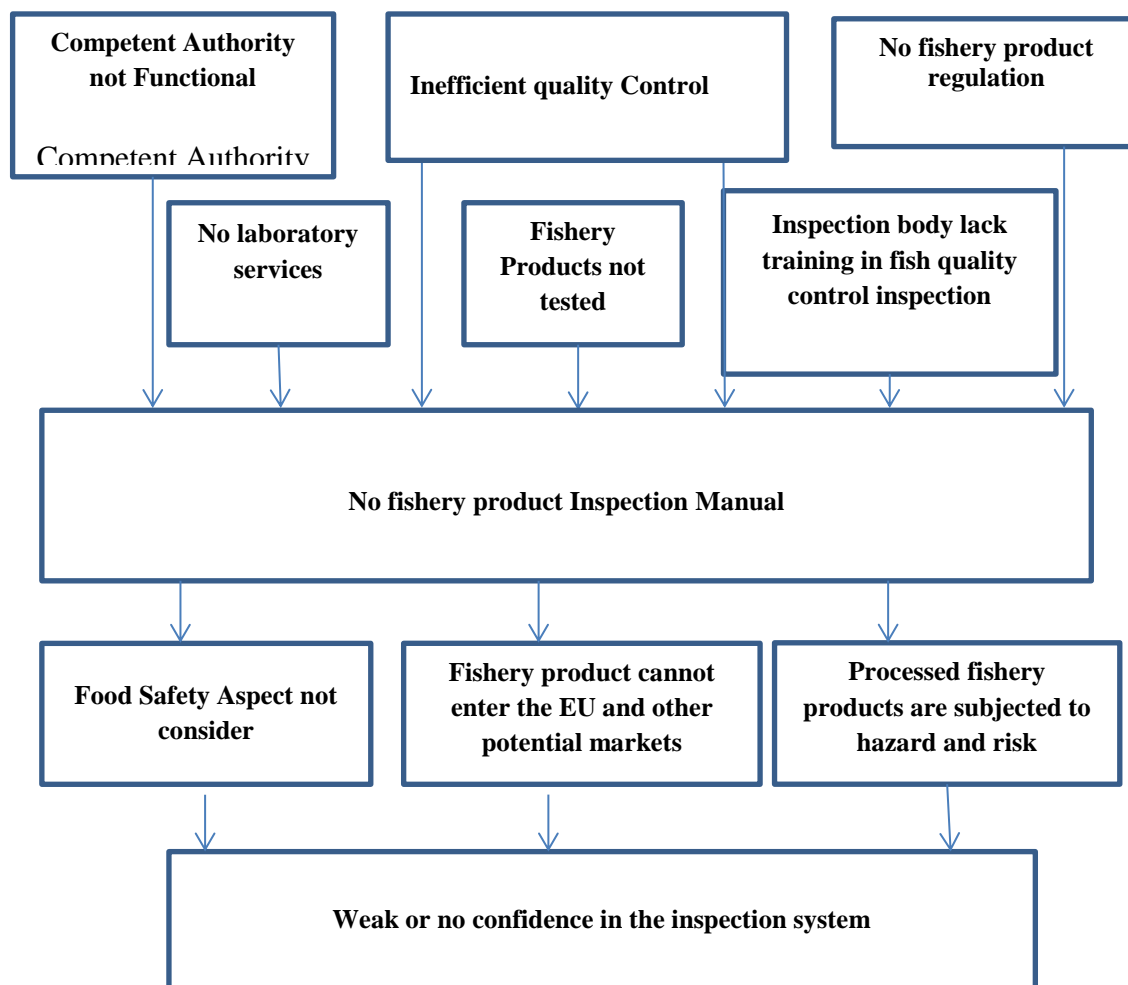


Figure 5: Analysis of shortcoming (lack of fisheries product inspection manual in the Competent Authority Division at the BNF).

The Icelandic Food and Veterinary Authority is the public sector body that conducts inspections to check that the handling, production and distribution of fish and seafood are in conformity to the provisions of laws and regulations. The Surveillance Authority of the European Free Trade Association supervises whether Icelandic authorities are ensuring that fish processing establishments operations adhere to European Union legislation on the preparation and handling of fishery products. The Competent Authority work to harmonise the inspectorate system and coordinate with the Directorate of Fisheries in implementing official control (Fiskistofa, 2010).

The Icelandic fishery product regulations and the inspection manual consider hygiene operation requirements that include but are not limited to:

- Hygiene in handling, processing and distribution fish and fishery catch and products
- During harvesting of fish and fishery products on board vessel
- Own check system in fish and fishery production (HACCP)
- Inspection of fishery
- Fishing vessels-Freezer vessels and fish processing establishments
- Heat treatment for bivalve mollusc
- Microbiological measures



- Parasite, TVB-N, HACCP organoleptic criteria
- Contaminants
- Bio-toxin-Laboratory
- Traceability systems

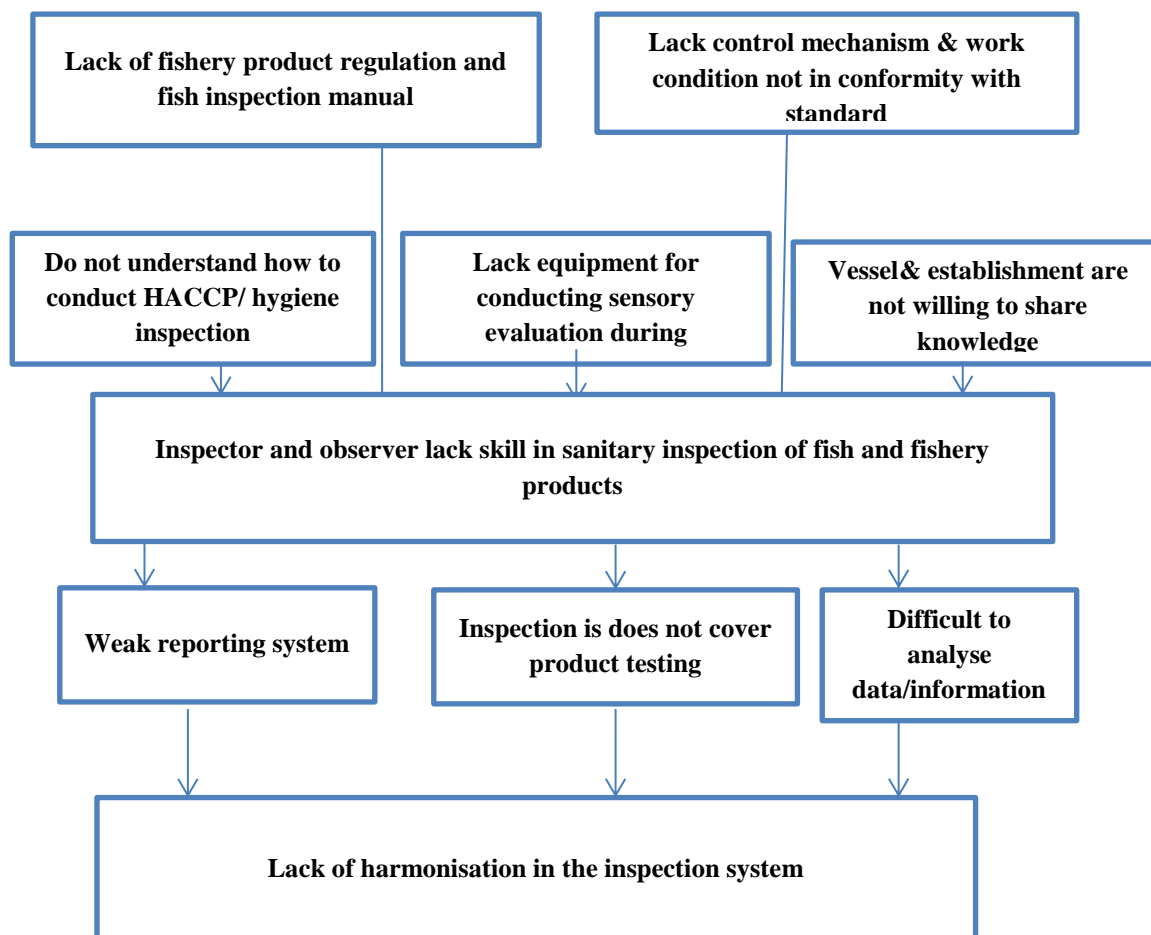


Figure 6: Shortcoming due to lack of skill by Inspectors and Observers.

Understanding how the Icelandic inspection system is organised to ensure conformity in the official control, the legal documents relating to the preparation of the fisheries products inspection manual is based on the EU regulatory requirements which the Icelandic inspection system fulfil for sanitary control and safety of fishery products as mentioned in (Appendix I). The use of the Icelandic seafood inspection manual is so unique and strict forward when it comes to setting limit for non-conformity and evaluating or rating of an establishment or vessel. The reporting standard is simple to adopt a yearly inspection plan based on result from inspections. The fish product inspection manual prepared consider all preventive measures equivalent to the Icelandic inspection manual in relation to the EU requirements which stress official control on non- conformity. Each items being discussed in the inspection manual are treated separately on the basis of the Legal requirement addressing them and must be fulfilled in terms of the quality and safety control in an establishments and vessels.

The assessment standard of the EU legal requirements is the basis for the development of the inspection manual. It can be deduced that these requirements confirm to risk assessment impact. For example, Basic quality controls information, Document filing, sanitation license and certification, Corrective Actions, Informing of possible Hazard, and Labelling with regard to the assessment of establishments including vessels must be approved by a competent authority, in this case BNF in term of official control. The use of these items in the creation of the inspection manual introduces the legal basis for official control and cannot be overlooked for sanitary control.

Though these requirements set forth are the basis for harmonisation of the EU seafood quality and safety control, detail explanation of these regulations are not provided about how each of the regulations shall be applied to evaluate these items mention above. Furthermore interpretation, procedures, methods and evaluation of these regulations depends on the National competent authority and food safety expert's views on what these regulations imply. This can sometime limit the understanding of these regulations when using them to described items for conformity and non-conformity. Cases that show the effectiveness of assessment systems through the use of an inspection manual have been reported (Chesworth, 1997) .

The due diligence being performed to certificate fishery products for export by the BNF is by no mean with international standard due to the lack of an effective assessment system. The fisheries product inspection system in Liberia lack interpretation, methods, and procedures that are not guided by legal document and standardise inspection manual. The lack of these legal requirements and accredited laboratory obstruct the work of the observers and inspectors when conducting an inspection on-board vessel, dockside, cold-storage and landing sites. In fact, the inspection checklist or data collection form lacks all fields needed for sanitary control. This is due to the absent of an inspection manual to serve as a guide.

## 8 CONCLUSION

The legal requirements use in the compilation of the fish inspection manual was extracted from the EU regulations as regards to the quality and safety of seafood of animal origin intended for human consumption. These regulations are of international standard that adopt HACCP approach to risk assessment. The Icelandic competent authority and other European's competent authorities count on the EU regulatory requirements as legal documents for seafood quality control and safety. The fish inspection manual is structured in such a way to provide all those attributes necessary to conduct an inspection for potential hazard based on EU hygiene requirements called the hygiene package (Appendix I). The inspection manual developed follow strict guidelines and base on standardise procedures and methods similar to the inspection manual use in the Icelandic inspection system which harmonise the inspectors work and provide various mean to achieved conformity and Non-conformities during an inspection. The available information from the Icelandic inspection manual (Fiskistofa, 2010) and the concept of predictive modelling risk assessment (Appendix 2) simplified the aspect of hazard analysis in the inspection manual developed. This in term makes the work easy for the inspectors and observers who are collecting sanitary control information.

Henceforth, based on the lack of a fishery products regulation and an inspection manual couple with the weakness and salient features of the seafood quality and safety control system in Liberia, there is a need for a fish inspection manual to ensure conformity for each inspector

and observer work and evaluate establishment/vessel. The development of the Inspection Manual is to suggest ways to simplify and standardise the inspection system in Liberia and to serve as a guide for fisheries Inspectors and Observers when conducting an inspection on the handling and processing of fish and fish on-board vessels, fish handling establishments, landing sites and cold storages. Detail application of the inspection manual for inspection is mention in the structure of the inspection manual in section 5.1 of this document. Interpretation, work procedure, methods and limits, explanation and evaluation were identified. Two evaluation units were identified and assign to each item when non-conformity are observed as either a deviation or a serious deviation. The approach to inspection methods (observation, measurement, documentation checks) were considered and use to match each item in the inspection manual (Appendix 3a) and checklist attached for inspection reporting system.

## 9 RECOMMENDATIONS

In view of the present shortcoming in the inspection system at the BNF, coupled with the objectives of the study, there is a need for the BNF to make changes in the quality control of fishery products inspection system at national level. This approach will definitely improve the work of the inspectors and observers. Though there are no fishery products regulation and an inspection manual, yet the fisheries sector is open to harvesting the marine resources. The BNF should adjust the inspection procedures and methods through the use of this fishery products inspection manual. Moreover, the objectives of this study could be achieved through the acceptance of this manual in the harmonisation of standard to improve the competent authority division. To provide changes in the shortcoming in the inspection system, the inspection manual for quality control should be consider in the following adjustment:

1. During the legal formulation of fishery products regulation and preparation of an inspection manual, consideration of all the contents of this inspection manual should be included in the legal documents for fishery products official control.

### 2. Legal Framework

The Bureau of National Fisheries should consider a prompt drafting of a fishery products regulation equivalent to EU regulatory requirements to enable Liberia export the harvested products to EU and other potential markets. If possible the current fisheries regulation should be reviewed to incorporate the aspect of health condition for the production and placement on the market of fishery products as accommodated in this inspection manual.

This should include the below:

- Fishery products Specification conditions for export and import;
- Condition for handling of fishery products both on land and on-board vessel;
- Quality assurance to ensure fishery product health through monitoring (HACCP) approach;
- Packaging and labelling;
- Identification marking for products traceability; and
- Storage and transportation.

3. The need to consider the use of this inspection manual as an effective tool for the fisheries inspectors and observers at the BNF in order to improve the inspection system for sanitary control.

4. Provision of training for fisheries Inspectors and observers through the use of this inspection manual as a guideline in hygienic inspection of fish and fish products. A new training for personnel involved in the assessment of fishery products quality and safety would result in a valuable knowledge of the inspectors and observers when conducting hygienic inspection of fishery products on-vessels, establishment and the landing sites.

5 Bearing in mind the linkage in the institutional structure of the BNF, that has to do with the absent of the competent authority division, the BNF should consider the proposed structure which include the competent authority division and the laboratory services. Furthermore, in the proposed structure, the laboratory services should be independent with secure funding in order to operate properly. See the propose structure of the competent authority division in figure 7.

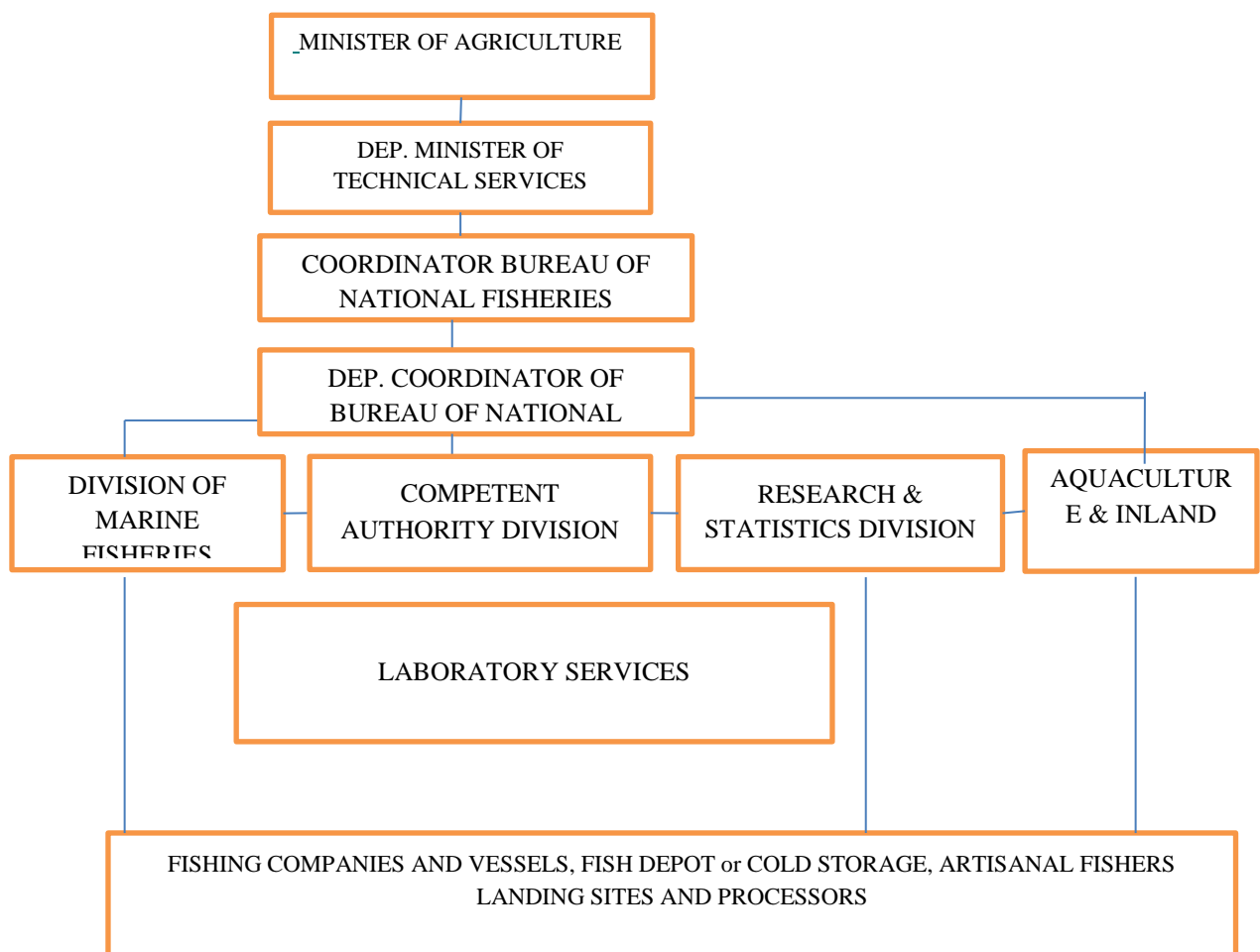


Figure 7: Propose structure of the competent Authority Division at the BNF.

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## **APPENDIX 1: EU Regulations-Fishery products**

These regulations define the general food safety and hygiene conditions applied to foods in

general, and foods of animal origin in particular, including fishery products. They also set out the system of official control in the activities of government undertaken to ensure that the regulatory conditions are complied with.

EU Regulation no. & Official Journal	Requirement
<p>EC no. 852/2004</p> <p>EU Official Journal</p> <p>OJ L 139, 30.4.2004, p. 1, Corrected and re-published in OJ L 226, 25.6.2004, p. 3</p>	<p>Regulation EC No. 852 of the European Parliament and of the Council on 29 April 2004 lay down general Hygiene of food stuffs:</p> <p style="text-align: center;">Annex I –Primary production Annex II- General hygiene requirements</p> <p>The Competent Authority ensure as established in Part II.1 of the health certificate, that fishery products exported to the EU have been caught and handled on board freezer vessels implementing a programme based on HACCP principles in accordance with Regulation (EC) No 852/2004.</p>
<p>EC no. 853/2004</p> <p>EU Official Journal</p> <p>OJ L 139, 30.4.2004, p. 55, Corrected and re-published in OJ L 226, 25.6.2004, p. 22</p>	<p>Regulation EC No. 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin.</p> <p>Hygiene of food of animal origin: Section VIII-Fishery products</p> <p>The Competent Authority guarantee that this establishment complies with the relevant EU requirements, in particular those of Part I.C.2 of Chapter I of section VIII, Annex III of Regulation EC No 853/2004 concerning freezer vessels.</p> <p>The Competent Authority ensure, as established in Part II.1 of the health certificate, that fishery products exported to the EU have been caught and handled on board freezer vessels in compliance with the requirements laid down in Section VIII, Chapter I.I.C.2. of Annex III to Regulation (EC) No 853/2004.</p>
<p>EC no. 854/2004</p> <p>EU Official Journal</p> <p>OJ L 139, 30.4.2004, p.206,Corrected and re-published in OJ L 226, 25.6.2004, p. 83</p>	<p>Regulation EC No. 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption.</p> <p>Official controls of fishery products, Annex III</p> <p>The competent authority should ensure, as established in the Part II.1.of the health certificate, that fishery products exported to the European Union have satisfactorily undergone the official controls laid down in Annex III to Regulation (EC) No 854/2004, in particular Chapter II, point D regarding histamine, residues and contaminants.</p>
<p>EC No. 882/2004</p> <p>EU Official Journal</p> <p>OJ L 165, 30.4.2004, p. 1, Corrected and re-published in OJ L 191, 28.5.2004, p. 1</p>	<p>Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.</p>
<p>EC No. 2073/2005 OJ</p> <p>Official Journal</p> <p>L 338, 22.12.2005, p. 1-26</p>	<p>Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological check/ criteria for foodstuffs (E.coli, Salmonella,Histamine)</p>
<p>EC No. 2074/2005</p>	<p>Commission Regulation (EC) No 2074/2005 of 5 December 2005 laying down implementing measures for certain products under Regulation EC No 853/2004 of the European Parliament and of the Council and for the organisation of official controls under Regulation (EC) No 854/2004 of the European Parliament and of the Council and Regulation (EC) No 882/2004 of the European Parliament and of the</p>



	Council, derogating from Regulation (EC) No 852/2004 of the European Parliament and of the Council and amending Regulations (EC) No 853/2004 and (EC) No 854/2004. Annex II, Section II, Chapter I, II, & II ,Such products include marine Biotoxins, Total Volatile Basic-Nitrogen limit value for certain categories of fishery products EX. Sebates Spp & Annex III, Chapter I for Paralytic shellfish poison (PSP) detection method
EC No. 178/2002  Official Journal of the European Communities L31/1	Regulation (EC) No 178/2002 of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

## APPENDIX 2: Modelling and Risk Assessment

Preventive modelling and risk assessment in relation to condition relating to fish handling and processing premises and equipment involves the following important stages mention below: Fisheries inspectors and observers need understanding of these modelling and risk assessment attributes.

1. Hazard analysis which consists of identifying and evaluating the hazards arising from the design of the plant and equipment, pest, physical contamination risk, water and environmental conditions and micro-organisms, other various relevant human factors including the possibility of using the food product.
2. A determination of critical control points (CCPs), which are defined as the point in the production process to which the identified. Hazards can be effectively control through a good inspection implementation. An alternative definition of the critical control points emphasises the need for the continuous integrity of the CCPs. This understanding is that CCPs are processing determinants whose loss of control permits the realisation of the potential hazard as an unacceptable food safety or food spoilage risk.
3. Establishment of appropriate systems for monitoring these CCPs

In implementation of the system, however, there is likely to be an additional initial stage in which a flowchart of the manufacturing processing for a product is drawn up on which the hazard and CCPs can then be indicated. Four stages are necessary which are:

- I. Construction of schematic flowchart of the entire process (this includes the plant layout, installation of equipment, personnel movement, process flow, finished products and by-products flow). Important data to collect include:
  - Method of transport of raw material, transit time, and temperature.
  - The time and temperature of storage of the raw materials
  - The make and model of the equipment being used in the processing and manufacture, along with the relevant technical data of its operation. For instance, if there is more than one make or model of a piece of equipment available for a given operation, this could have an important influence on the quality and safety of the product.
- II. Hazard Analysis- Identification of hazards (physical, chemical, and biological) and the location of these records at the appropriate points on the flowchart. Hazard There are three different types of microbiological hazards:
  - Raw materials which can be regards as potential source of pathogen, food poisoning organisms, food spoilage organisms, or toxic substance
  - Source of contamination during production, processing or distribution.
  - Steps during production, processing, distribution, storage, etc., which provide an opportunity for micro-organisms survive or even grow and multiply.

Hazard Analysis requires various element of evaluation such as in the case of a food microbiologist or an inspector train in food hazard to examine all aspects of the premises and equipment as shown in a flowchart, using an evaluation based on an informed awareness of the determinants of the hazard. The Table below show a hazard analysis.

Table 3: A typical Hazard Analysis plan.

Item	Hazards	Is the hazard significant?	Justification	Preventive measure	Is it a CCP
Capacity of Freezer	Microbial growth, pathogens	Yes/No yes	Example. Bacillus coagulants (thermoduric thermophilic spore former are significant as spoilage organisms in their own right in tropic (room Temperature). Food borne pathogens (Campylobacter, Viruses) whether or not food is refrigerated is not of direct important.	Fast freezing to reduce regeneration phase and retard chemical changes. Matching freezer capacity with procedure process.	Yes/No  Yes

The above analysis requires determination of risk which is the probability of the potential hazard being realised and its severity. This is vital in establishing an evaluation of points requiring consideration. The table below show hazard ranking.

Table 4: Hazard ranking to determine rating of items.

	Low (L)	Medium (M)	High (H)
LOW (L)	L/L	L/M	L/H
Medium (M)	L/M	M/M	M/H
High (H)	L/M	H/M	H/H

Table show how the probability modelling and risk determination can be derived to show the rating needed to be given base on the hazard if an establishment or vessel get a non-comformity.

**H/H- (Evaluation or Rating D):** Any condition or practice that can lead to fish or fishery products becoming unsafe or create spoilage of fish and fishery products.

**H/M or M/H- (Evaluation or Rating SD):** Any condition or practice that can impede proper implementation of hygiene practices or obtain appropriate level of hygiene and can lead to the creation of contamination or cross contamination or spoiled fish or fishery products where there is no safety measures in place.

**M/L or L/M- (Evaluation or rating D):** Any condition or practice that can lead to fish or fishery products becoming unsafe or create spoilage of fish and fishery products.

**L/L- (Evaluation or Rating D):** Any condition or practice that can lead to fish or fishery products becoming unsafe or create spoilage of fish and fishery products.

III. Identification of Critical Control Points, and location of these on the flowchart, followed by a re-valuation of the interaction between Hazards and CCPs. A decision tree can be used here.

A Critical Control Points may provide a total elimination of one or more microbiological hazards. This is designated as a CCP-1. In other cases, a CCP may reduce a microbiological hazard without entirely eliminating it, and this has been designated as CCP-2

IV. Listing and evaluation of the monitoring and quality assurance procedures (Table 4) use to ensure continuing effectiveness of control in the rating system together with a consideration of the nature of the documentation on monitoring and the quality assurance procedure and documentation filing.

## APPENDIX 3a: The Upstream Quality Control and Safety Inspection Manual

### 2. Quality Control

#### 2.1 Base and management of quality control

##### 2.1.1 Basic Quality Control Information

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EC n° 854/2004, Chapter II, Article 4(1)

#### Interpretation

In vessels and establishments the following information must be available in documents:

Precise and clear records including:

- a) Organisational chart and responsibility of the production management.
- b) Work description for responsible persons in the quality control system.
- c) Product description for each product or product groups
- d) Process flow diagram.
- e) Description of the process flow
- f) Blueprints of the process facility or vessel, its lay-out including water pipes and outlets
- g) Sampling plan in accordance to the nature of the process and based on verifying the quality control of the process.

#### Inspection method

Inspection of documents

#### Work procedure

Check if the following documents are available and in compliance to reality:

- a) Organisational chart, describing the responsibility of production management.
- b) Work description for responsible persons in the quality control system.
- c) Product description for each product or product groups
- d) Blueprints of the process facility or vessel, its lay-out including water pipes and outlets
- e) In sampling plan at least the following must be included>
  - What is being sampled
  - When the samples should be taken (*ex. 15 of every month*)
  - How is the sample taken (*reference to certain procedures*)
  - Who is responsible for taking the samples
  - Limits for each sample.
  - Corrective actions to be taken if sample is not within limits

Documents requested shall be supplied while inspection is taking place.

#### Limits

Every document a) to e) must be available when requested.

Explanation	Evaluation
Documents and records not available within reasonable time from request and not in compliance to reality result in	<b>D</b>

### 2.1.2 Document filing

EC n° 852/2004, Chapter II, Article 5(4)

#### Interpretation

Results from quality control and laboratory test must be stored at least one year longer than the shelf life of the product but never less than two year. Permanent documentation of own checks must be filed in such a way that fish inspectors have easy access to them. This also applies to temperature recordings of freezing storages or due to heat treatments

#### Inspection method

Inspection of documents

#### Work procedure

Check if documents are available for the quality control by randomly selecting dates of production records from last inspection.

#### Limits

Permanently documented records go back at least one year longer then the shelf life of the product or at least two years.

Explanation	Evaluation
All deviations result in	<b>D</b>

### 2.1.3 Sanitation License and Inspection Certificate

EC n° 854/2004, Chapter II, Article 3 (1), (3), & (4)

#### Interpretation

When an establishment has been approved a sanitation license is issued and handed to the establishment. Regular inspections shall be conducted according to this manual. In each inspection, an inspection certificate is written. These documents must be available to the inspectors at all times. The inspector register all defects into the inspection certificate during the inspection and leave it in the establishment.

#### Inspection method

Inspection of documents

#### Work procedure

Check if the sanitation License as well as former Inspection certificates is available. Compare the sanitation License to the registry of the competent authority division (CAD).

#### Limits

Sanitation License must be available and up to date and Former Inspection Certificates available to the inspectors.

Explanation	Evaluation
All deviation result in	<b>D</b>

### 2.1.4 Corrective Actions

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EC n° 852/2004, Annex II, Chapter IX

#### Interpretation

In order to fulfil all set requirements made to a facility or vessel, a license producer must conduct all corrective action requested without delay and fix all deviations observed from last inspection.

#### Method of inspection

Inspection of documents and observe the corrective action

#### Work procedure

Check if all corrective actions are completed. The status of the facility or vessel is compared to the last inspection report made by CAD. If an item from the last inspection is not fulfilled, check if the producer has place a written authorisation for prolongation from the CAD.

#### Limits

Corrective action done

Explanation	Evaluation
Corrective action not fulfilled	SD

### 2.1.5 Informing of possible Hazard

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EC n° 854/2004, Annex III, Chapter II, & III and EC 178/2002 Chapter IV, section 1, Article 50 (3)

#### Interpretation

The responsible person at a fish establishment or vessel or transporting establishment must inform the CAD in writing of any possible hazard in a fish product that may cause harm to the consumer. The provincial offices in close co-operation with the CAD determine whether the facility or vessel must recall the product from the market or launce other security activities that will protect the consumer from possible health hazards.

#### Bacteria and chemicals that must be reported to CAD

Bacteria	Chemicals
Clostridium botulinum	Paralytic shellfish poisoning (PSP)
E. coli	Amnesic shellfish poisoning (ASP)
Giardia labia	Diarrhoeic shellfish poisoning (DSP)
Campylobacter sp.	Histamine
Vibrio cholera	
Legionella sp.	
Listeria monocytogenes	
Bacillus anthracis	
Salmonella sp.	
Shigella sp.	

**Method of inspection**

Interview and document inspection

**Work procedure**

Check if a possible hazard has been detected in the establishment and report to CAD or provincial offices and necessary corrective actions done due to knowledge or suspicion of hazards like from bacteria`s or poisonous chemicals.

**Limits**

Possible hazards reported

<b>Explanation</b>	<b>Evaluation</b>
Possible hazards not reported	<b>SD</b>

**2.1.6****Labelling**

EC n° 853/2004 Annex II, Section 1

**Interpretation**

Due to control it is necessary to trace the origin of the fishery products to the producer through labelling of the packaging. Therefore the following information must appear on all primary and secondary packaging:

Name of the country of origin “Liberia”

Sanitary number or license number of the facility or vessel

These labels must be on the outside panel and be easily readable without opening the package in question.

Labelling must otherwise be in accordance to Regulation (*EC No 104/2000 Chapter II, Article 2, 3, 4, 5 & Chapter III, Article 8*)

**Method of inspection**

Inspection of packaging material and fully pack product

**Work procedure**

Conform that the country of origin and the sanitary number is clearly labelled on the outside panel.

Conform that the labelling is in accordance with Regulation (*EC No 104/2000 Chapter II, Article 2, 3, 4, 5 & Chapter III, Article 8*)

**Limits**

All items fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
For each item not fulfilled:	<b>D</b>



## 2.1.7 Verification

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EC n° 852/2004 Chapter II, Article 5

### Interpretation

For establishments and vessels using HACCP, procedures for verification must be present. The verification of Quality Control System must be conducted at least once a year. The verification procedures aim at confirming that identified control in the process is conducted according to set schedule and to evaluate if the quality system guarantees the safety and wholesomeness of the fish products being produced in the facility or vessel.

If verification results in a fault in the quality control system, necessary corrective actions must be taken without delay. All corrective actions and changes of the system must be recorded and the records securely stored at the production location.

Establishments and vessels must send every three months a sample of finished product from approved areas for microbiological analyses at an approval laboratory to confirm the activity of the sanitation program. Other tests like sulphite and salt analyses etc. should also be done if applicable. Test results must be kept for inspection and review at the production site.

### Method of inspection

Inspection of documents

### Work procedure

Confirm that verification is conducted (where HACCP is used) at least annually and verification procedures are in place.

Check if microbiological samples have been sent to an approval laboratory every three months and test results are kept at the production site.

Explanation	Evaluation
All items not fulfilled result in	<b>D</b>

## 2.2 Hazard Analysis Critical Control Point (HACCP)

### 2.2.1 Mandatory Documentation

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EC n° 854/2004 Chapter II, Article 4 (1), (3)-(6) & EC n° 852/2004 Chapter II, Article 5

### Interpretation

Facilities and vessels using HACCP system must have available at the processing site the following up to date documentation

1. *Product description* including the composition of final product, method of conservation, packaging and labelling, storing condition of raw material and final product, shelf life, how the final product should be prepared for consumption and means of distributing the final.
2. *Product flow chart* indicating the critical control points if any
3. *Description of the steps* in the process flow chart

### Method of inspection

Inspection of documents

**Work procedure**

Check if product description is available including all items in point 1 above.

Check if a product flow chart is available indicating the position of the critical control points

Check if all steps in the flow chart are clearly described.

Check if the documentation is up to date.

**Limits**

All items above must be accounted for

<b>Explanation</b>	<b>Evaluation</b>
Items not accounted for result in	<b>D</b>

**2.2.2 HACCP Analysis**


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EC n° 854/2004 Chapter II, Article 4 (1), (3)-(6) & EC n° 852/2004 Chapter II, Article 5

**Interpretation**

In facilities and vessels using HACCP an up to date hazard analysis must be available at the processing site and must be approved by the competent authority before a processing license is issued. The hazard analysis must be conducted accounting to HACCP plan and take into account possible biological, chemical and physical hazards. Once the HACCP system has been approved it is not necessary to inspect it again. The role of the inspectors during their regular visits is therefore not to re-evaluate the system but to confirm that the quality control personnel understand the result of the hazard analysis and that all new quality control personnel are made aware of it. Furthermore to confirm that if any changes are made in processing or on housing and equipment then the hazard analysis are re-evaluated and confirmed by the competent authority.

**Method of inspection**

Inspection of documents and documentation and interviews

**Work procedure**

For first time inspection, confirm that the quality control personnel understand the results of the hazard analysis.

In regular inspection visits check if any new quality control personnel have been hired and confirm that they have gained understanding on the hazard analysis.

In regular visits confirm that if any major changes have been done on the process or on housing or equipment that could affect the safety of the product, that the hazard analysis has been re-evaluated and confirmed by the competent authority.

**Limits**

Every item must be in place.

<b>Explanation</b>	<b>Evaluation</b>
Hazard analysis not in place or items not included result in:	<b>D</b>

**2.2.3 Critical Control Point Determination and Setting Limits**


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EC n° 854/2004 Chapter II, Article 4 (1), (3)-(6) & EC n° 852/2004 Chapter II, Article 5

**Interpretation**

If a hazard analysis results in a potential hazard in the production, a critical control point (CCP) must be defined according to the rule of HACCP. Measurable limits must also be set for each CCP. The HACCP system including the CCP definition must be accepted by the competent before a license is issued. Therefore, it is not necessary for the inspectors to evaluate the CCP in the production on their regular visits to the production site.

Inspection on regular inspection visits must however include confirming that the CCP are controlled and monitored and corrective actions done if the set limits are exceeded.

**Method of inspection**

Documents are inspected

**Work procedure**

Select randomly 3 production date from last inspection and pick two CCP. Inspect all document related to these two CCP for all the dates selected. Confirm that the monitoring has been conducted according to the HACCP system and if limits are exceeded then corrective action has been made.

**Limits**

Monitoring and control of the CCP are according to the approved HACCP system.

Explanation	Evaluation
Items not addressed result in:	<b>SD</b>

## 2.2.4 Control, Documentation, and Corrective Actions

EC n° 854/2004 Chapter II, Article 4 (1), (3)-(6) & EC n° 852/2004 Chapter II, Article 5

**Interpretation**

For every critical control point determined, strict rules must be available regarding control and the documentation of the control. What must be included in these rules are:

- What is being control?
- How the control is conducted?
- When the control is conducted?
- Who will conduct the control?

For each critical control point rules regarding corrective action must be in place that list the Step to be taken if limits are exceeded. These corrective actions must include:

- Who is responsible for corrective actions?
- Description on methods and activities that will be taken to correct the deviation in the production.
- Description on action to be taken in regards to products that have already been produced while the production was out of control.
- Rules regarding how to document the corrective actions taken.

**Work procedure**

Confirm that the production control is according to the above.

Inspect documentation on own checks or measurements done in connection to the critical control points.

### Limits

Every item must be addressed

Explanation	Evaluation
Items not addressed result in:	<b>D</b>

## 2.3 Traditional Method

EC n° 854/2004, Chapter II, Article 3 (1), (3), (4) & EC n° 852/2004 Chapter V, Article 13 (4) (a)

### Interpretation

Land based facilities and vessels producing for a market that does not require HACCP can choose to use the traditional method of quality control system. The system must be submitted to Competent Authority for approval.

The Traditional method of Quality Control System must be stored at production site at all times and available to the official inspectors.

Any major changes made in the production that can affect the Quality System and its implementation must furthermore be submitted to the Competent Authority for approval before the changes are made.

### Method of inspection

Inspection of documents and documentation, and interviews

### Work procedure

Confirm that the Traditional Quality Control System is approved by the Competent Authority.

Confirm that the Quality Control System is at the production site and easily available.

Confirm that the Quality Control System is applied in accordance to processing procedures at the facility or vessel.

### Limits

Every item must be in place

Explanation	Evaluation
Hazard analysis not in place or item not included result in:	<b>D</b>

### 2.3.1 Required Procedures and Documents

EC n° 852/2004 Chapter II, Article 5 & Annex II, Chapter XII

### Interpretation

The traditional Method of Quality Control System must include the following:

- Organizational diagram and description of responsibility
- Description of product being produced

- Identification of intended use (labelling, codification, classification, and destination market)
- Production flow
- Description of the method of quality control from the raw material to the final product
- Type and quality of raw material
- Complete description of the processing method
- Description of the ingredients used and quantity

### Method of Inspection

Inspection of documents and documentation

### Work procedure

Confirm that all the above mentioned procedures and documents are in place and implemented accordingly.

### Limits

Every item must be in place

Explanation	Evaluation
Hazard analysis not in place or items not included result in:	<b>D</b>

## 2.4 Health Control

### 2.4.1 Health Control

EC n° 852/2004 Annex II Chapter VIII

#### Interpretation

Staff of all facilities and vessel that may come in contact with areas of handling and processing must have a valid sanitation certificate (Bulletin), issued on the bases of specific analyses through the structure of the Ministry of Health.

The sanitation certificate must be available for the official inspectors upon request.

The management shall prepare a general rule on how to prevent their personnel that are sick or seen to be suffering from transmissible diseases, have open wounds, acute respiratory problems, infected wounds or any other source of contamination sources that may be transmitted to the fishery product directly or indirectly, enter the fish processing facility or the processing area of the vessels. Every applications of this rule must be documented.

### Method of Inspection

Inspection of documents and documentation

### Work procedure

Ask for a list of all people working or may enter the production area and pick 5 names at random. Confirm that a valid health certificate is available for those persons.

Check if a written general rule on how to prevent that sick people are working and if it is applied.

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Item not fulfilled result in:	<b>D</b>

## 2.4.2 Training and Knowledge of Staff

EC n° 852/2004 Annex II, Chapter XII

### Interpretation

All processing facilities and vessels must appoint responsible personnel for implementing the Quality Control for the fish production and furthermore for the revision and adaptation whenever the raw-material, processes or other considerations imply new hazards.

In order for those personnel to handle responsibility he/she must have knowledge, training and experience on quality control and own checks in fish processing, cleaning and sanitation, General hygiene, pest control, fish processing flow and chemical used in fish production.

The responsible person must furthermore secure minimum knowledge in quality control to personnel given the responsibility to conduct quality control work and further secure that all personnel receive basic training in carrying out their work in the fish processing.

### Method of Inspection

Inspection of documents and documentation and interviews

### Work procedure

Confirm that all the responsible persons have experience and training in the above mention items.

Confirm that all persons working in quality control have minimum knowledge in quality control.

Confirm that all personnel in the processing facility have received training in their work.

Check if there exists a register over the training of the personnel

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Item not fulfilled result in	<b>D</b>

## 2.5 Water and Plumbing

### 2.5.1 Water and Ice

(EC) No. 852/2004 Annex II, Chapter VII

### Interpretation

Land-based facilities and vessels must include in their quality control system how the quality of water used for production, cleaning and disinfecting is guarantee. The water must fulfil the requirement as laid down in the above mentioned EU regulation, 2004.

Ice must fulfil the same biological, physical and chemical requirements as water and must be protected during transport and handling. Ice-making machine must be clean and disinfected at regular intervals. The ice-making system shall be closed and protected from any outside contamination.

If chlorine is added to water the concentration of residual chlorine must not exceed 1ppm (mg/l).

Sampling of water must be in accordance to the above EU regulatory requirements.

If result from microbiological testing of water exceeds set limit CAD must be informed for further actions that will be done in co-operation with the facility or vessel in question.

### Method of Inspection

Inspection of documents and facility

### Work procedure

Confirm that the water quality is monitored according to the above EU regulatory requirements and results are in set limits.

Confirm that ice is made from water that fulfils the criteria in the above EU regulation, ice machines are cleaned and disinfected and the transport, storage and handling of ice eliminate possible contamination.

*Confirm that the ice-making system is closed and protected from any outside contamination.*

Confirm that the chlorine concentration does not exceed 1ppm

Confirm that sampling of water is according to the above EU regulatory requirements.

If microbiological testing has exceeded the set limit, confirm that CAD was informed accordingly.

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items not fulfilled result in:	SD

## 2.5.2 Clean seawater

(EC) No. 852/2004 Annex II, Chapter VII & Chapter I, Article 2(h)

### Interpretation

Clean seawater is defined as being Natural, artificial or brackish water that does not contain microbiological, harmful substance or toxic marine plankton in quantities capable of directly or indirectly affecting the health quality of the fishery products.

Clean seawater must fulfil the same microbiological criteria as portable water.

If chlorine is used then the concentration may not exceed 1ppm. Concentration level must be monitored daily.

Samples for microbiological testing must be taken at least twice a year.

If results from seawater testing exceed set limits, CAD must be informed which will decide on further action in co-operation with the processing facility or vessel.

### Method of inspection

Inspection of documents

### Work procedure

Confirm if seawater is used in the processing, that samples are taken for microbiological testing at least twice a year and results are set limits.

If chlorine is used in the clean seawater, confirm that its concentration is below 1ppm (mg/l) and that the seawater is tested daily.

If microbiological testing has exceeded the set limit, confirm that the CAD was informed accordingly.

### Limits

Every item must be fulfilled

Explanation	Evaluation
Item not fulfilled	SD

### 2.5.3 Non portable water

(EC) No. 852/2004 Annex II, Chapter VII (2)

#### Interpretation

An establishment/vessel may use non portable water for fire protection, boilers, or auxiliary services if there is no connection between the water systems providing portable water to the establishment/vessel.

#### Inspection Method

Inspection of documents (drawings) and the facility or vessel

#### Work procedure

Confirm that, if non-portable water is available in the establishment or vessel that cross connection does not occur. All lines and outlets for non-portable water located in processing area must be painted a contrasting colour for immediate identification.

#### Limits

No cross connection in place between portable and non-portable water.

Lines and outlets for non-portable water in processing areas are clearly identified.

Explanation	Evaluation
Item not fulfilled result in:	D

### 2.5.4 Design

EC 853/2004 Annex III, Section VIII, Chapter I, A

#### Interpretation

The intake of seawater on vessels shall be located so that there is no potential risk of contamination from waste outlet or other polluted water outlets.

All water pipes must be whole and well maintained.

A sufficient number of valves to avoid the need for too long hoses;

Hoses shall be whole and done and hang up when not in use;

If there is a risk for back-flow of the water in case of drop in water pressure, one-way valves should be installed.



Drawings showing the piping lay-out for water and seawater shall be available. All outlets (valves) shall be shown and numbered.

### Inspection method

Inspection of documents (drawings) and the facility or vessel

### Work procedure

Check on drawings of the vessel, the location of the seawater intake and if there is risk for contamination from outlets.

*Check if pipes are whole and well maintained.*

*Check if the hoses are less than 10m long; if they are whole and kept hang up when not in use.*

Check on pipe drawings if there is a need for one-way valves and if they are used

Check on pipe drawings if the valves (outlets) are numbered.

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Item not fulfilled result in:	<b>D</b>

## 2.5.5 Water and waste-water

EC 853/2004 Annex III, Section VIII, Chapter I, A

### Interpretation

A system to pump or store waste water in vessels must be such that it can transport all the water flows easily, even at the peak of the processing capacity. The pipes may not leak and not be placed over fish contact surfaces.

In land based plant the piping system must be able to transport all waste and waste water easily even in peak of production. The system must be designed to avoid any contamination from (human toilet and urine flushed out) or other polluting waste.

In facilities and vessels drawings must be in place that shows the design and location of the waste-water system.

### Inspection method

Inspection of documents and the facility or vessel

### Work procedure

*Confirm that the waste-water system can transport all the waste and waste-water at the peak of production.*

*Confirm that waste-water pipes do not leak and are not place above food contact surfaces.*

Confirm that the waste-water system is designed to avoid any contamination from (human toilet and urine flushed out) or other polluting waste into the processing area.

Confirm that drawings of the facility/vessel showing the waste and waste-water system are available and up to date.

**Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items not fulfilled result in:	<b>D</b>

**2.6 Pest extermination****2.6.1 Extermination plan**


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EC n° 852/2004 Annex II, Chapter IX, point 4

**Interpretation**

A plan for pest extermination must be in place and available to the official fish inspectors. This plan must at least include the following:

- A list of rodent traps, insect traps and flies exterminators used and they must be numbered or identified in other way.
- A drawing showing the location of the above mentioned traps and exterminators.
- Regular inspection frequency (at least once a month and more frequently if pests are observed) to verify that food, water, and shelter is not for pests.
- Checking if any signs of pests can be seen in or close to processing areas.
- Checking all incoming goods for signs of pests.
- Actions defined if pests are present.

**Inspection method**

Inspection of documents and the facility or vessel

**Work procedure**

Inspect the pest exterminators plan and confirm that it contains a list of numbered traps and fly exterminators or otherwise identified and the drawings showing their location;

Confirm that traps and baits are monitored at frequency planned.

Confirm that checking is done according to the extermination plan if food is available for pests, any signs of pest can be seen etc.

Confirm that appropriate actions are taken when and if pest are present.

**Limits**

The plan covers rodent and insects traps and flies exterminators and contains a numbered list of the same or be identified.

The pests are controlled according to the extermination plan.

Appropriate actions taken.

<b>Explanation</b>	<b>Evaluation</b>
Items not fulfilled result in:	<b>D</b>

**2.6.2 Rodent traps and insect traps**


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EC n° 852/2004 Annex II, Chapter IX, point 4

**Interpretation**

Rodent-traps and insect traps must be placed in such a way to catch all rodents and insects entering the land based facility or vessel and must be inspected regularly.

The traps must be designed in such a way to avoid contamination of fish contact surfaces.

Rodent poison may or should not be used in the processing area.

**Inspection method**

Inspection of documents and facility or vessel

**Work procedure**

Inspect the location and content of the traps and confirm that everything is according to the extermination plan.

Confirm that the traps work

Confirm that the traps are designed to avoid contamination and that poison is not used inside the processing facility or vessel.

**Limits**

Traps in accordance to plan, are in order and do not cause contamination. Poison is not used inside the processing area.

Explanation	Evaluation
Items not fulfilled result in:	<b>D</b>

**2.6.3****Fly exterminators**

EC n° 852/2004 Annex II, Chapter IX, point 4

**Interpretation**

At least one fly exterminator must be by each entrance to area where production takes place and by the entrance of areas where packaging materials are stored.

Fly exterminators may not be placed over work tables, in front of air conditions or places that may cause contamination of the product.

The fly exterminators must be connected 24 hours a day.

Light bulbs must be changed at least twice a year or according to instructions from the producer of the equipment.

Fly exterminators must be cleaned regularly depending on the flies concentration in the area.

**Inspection method**

Inspection of documents and facility or vessel

**Work procedure**

Inspect the drawings and all processing areas and packaging material storages and confirm that at least one fly exterminator is by the entrance to those areas and the equipment is connected and in order.

Inspect document to confirm that light bulbs have been changed according to the instruction of the producer of the equipment or twice a year.

Check if the exterminator has been cleaned and check records to confirm that this is done on regular bases.

**Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items not fulfilled result in:	<b>D</b>

**2.7 Cleaning and disinfection****2.7.1 Sanitation plan and confirmation of cleaning**


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EC n° 852/2004 Annex II, Chapter I-V

**Interpretation**

- Land based facilities and vessel must have in place a sanitation plan for food contact surfaced and non-food contact surfaced like walls, floors, ceilings etc.
- Frequency and kind of cleaning and disinfecting during processing must be in accordance to sanitation plan and in compliance to directions from the producers of the cleaning and disinfectant agents.
- Sufficient equipment for cleaning of facilities or vessels, tools and equipment's must be in place.
- In both land based facilities and vessels samples of contact surfaces must be taken at least every three months to confirm the cleaning procedures.
- At least twice a year samples of final products must be sent to an approved laboratory for microbiological analysis. The results must be compared to the regular testing of the contact areas
- Cleaning agents and disinfectants used in fish production must be approved for use in food processing industry by respective competent authority before use. An attestation shall be available at the production site.

**Inspection method**

Inspection of documents and facility or vessel

**Work procedure**

Check if the sanitation program includes cleaning of both food contact surfaces and non-food contact surfaces;

Confirm that cleaning is in accordance to sanitation program;

Confirm that cleaning is documented;

Check quality records to confirm that results from the contact surface testing indicate sufficient cleaning.

Check if samples of final products are sent to an approved laboratory at least every six months for microbiological testing to confirm cleaning and sanitation;

Check if an attestation is available, showing that the cleaning agents and disinfectants used are approved for food industry.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items not fulfilled result in:	<b>D</b>

## 2.8 Special control

### 2.8.1 Inventory control

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#### Interpretation

All land based facilities and freezing warehouses must submit to the competent authority every 15 days information concerning production and storage of fishery products.

Every fishery products unloaded from vessels must be declared to the Competent Authority. This is a decision of the BNF to make.

#### Inspection method

Inspection of documents

#### Work procedure

Confirm that information is submitted every 15 days to the Competent Authority and that information on the origin of the catch processed is clearly stated.

#### Limits

Items must be fulfilled

Explanation	Evaluation
Items not fulfilled result in:	<b>D</b>

### 2.8.2 Freezing capacity

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EC n° 853/2004 Annex III, Section VIII, Chapter I(C)

#### Interpretation

When freezing in a freezing unit the time reaching a product core temperature of -18°C or lower may not be more than half of the thickness of the product being frozen measured in centimetres. For example a 5cm in thickness may not take more than 2.5 hours to reach -18°C or lower in core temperature. The freezing capacity of the freezing equipment must be tested at least once a year.

#### Inspection method

Inspection of documents

#### Work procedure

Check documents to verify that for all freezing equipment, the freezing capacity is control at least once a year according to the above.

#### Limits

Lower than -18°C on freezing time, which is  $0.5 \times \text{thickness of the product in cm}$ .

**t (hour)=thickness (cm)/2**

Verified at least once a year, all freezing equipment tested.

Explanation	Evaluation
Items not fulfilled result in:	<b>D</b>

## 2.9 Chemicals

### 2.9.1 Approved Additives

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EC 95/2 Annex I & (EC) No 1333/2008 Articles 6, 7 and 8

#### Interpretation

Additives can only be used if they are in accordance to regulations of the country export to or according to the above EU regulations on the use of chemical.

The producer is responsible that all additives used in his production are permitted in the country exported to. He is furthermore responsible for the quantity of additives in the final product is below the limits set by the country exported to. A list of additives allowed in fish products for EU market and limits of each additive in the final product is in **EC 95/2 Annex I**

Additives must be stored in closed storages under conditions that avoid contamination to or from them.

#### Inspection method

Inspection of documents and facility/vessel

#### Work procedure

Check if additives are used in processing.

Confirm if additives are used or found in found in the facility or vessel that they are permitted by the country exported to or allowed to be used by the Competent Authority.

Verified that the concentration of additives in the final product is adjusted below the limits set by the exported to.

*Check if the food additives are stored under appropriate conditions.*

#### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items not fulfilled result in:	<b>D</b>

### 2.9.2 Packaging materials

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EC n° 852/2004 Annex II Chapter X & EC n° 853/2004 Annex III, Section VIII, Chapter VI

#### Interpretation

All fishery products meant for exportation will have to be thoroughly packed. For frozen products of big species like Tuna and others meant for further processing must be packed in adequate materials.

The wrapping material that is likely to enter into direct contact with the fishery product in accordance with the requirements of food hygiene and sanitation must:

- Not permit the deterioration or alteration of the characteristics of the fishery product to be packed.
- Not permit the transmission to the fishery products of substances that are dangerous to human health.
- Be resistant, in order to protect the fishery product to be packed.

Producers of fishery products must have in their position a written statement or an attestation from the producer of the packaging material in question stating it is intended for food production and does not cause any threat to the consumer.

Packaging materials may not be re-used except secondary packaging materials made of impermeable, plain material, resistant to corrosion that can be washed thoroughly and disinfected.

### **Inspection method**

Inspection of documents and packaging materials

#### **Work procedure**

Confirm that the packaging materials do not cause any alteration of the characteristics of the fishery product (like strong odour etc.)

Confirm that a statement or an attestation from the producer of the packaging material is in place stating that the packing material is intended for food products and do not contain any chemicals that might cause threat to the consumer.

*Confirm that the packaging material is resistant and protects the fishery product.*

*Confirm that the packaging materials are not re-used according to the above.*

### **Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items not fulfilled result in:	<b>D</b>

## **3 Premises**

### **3.1 Buildings**

#### **3.1.1 Wall and door**

EC n° 852/2004 Annex II, Chapter II 1(b) & (e)

#### **Interpretation**

The walls of wet areas shall have washable surface areas, impermeable to height of 1.8 meters, of light colours, smooth, resistant and with no cracks and the joints with the floor rounded. In dry areas the walls shall be of light colour, smooth, resistant and with no cracks.

Doors shall be of resistant, impermeable, and easily cleanable material and be easily closable.

#### **Method of inspection**

Inspection of processing facilities and vessels

#### **Work procedure**

Check if walls in wet areas are impermeable and have easy to wash surface areas up to at least 1.8 meters.

Check if walls have light colours, are smooth, resistant and with no cracks.

Check if the joints to the floors in wet areas are round.

Check if doors are of resistant, impermeable and easy to clean material.

Check if the doors can be easily closed.

**Limits**

All items must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Item not fulfilled result in:	<b>D</b>

**3.1.2 Floors**

EC n° 852/2004 Annex II, Chapter II, 1(a)

**Interpretation**

Floors of wet processing areas shall be smooth and resistant, impermeable and anti-slip, easy to clean and to disinfect.

In land based facilities the floors in wet areas must slope not less than 1.5% for draining of all residual water.

Floors in dry work areas shall be constructed smooth and resistant in such a way as to facilitate cleaning and kept free of gaps or cracks.

Floors must be whole and undamaged.

**Inspection method**

Inspection of processing facility or vessel

**Work procedure**

Check if floors in wet areas are made of impermeable and anti-slip material which is easy to clean and disinfect.

Confirm that the floors in wet areas in-land based facilities have slope not less than 1.5%.

Check if floors in dry areas are smooth, resistant and easy to clean.

Check if floor surface is whole and undamaged.

**Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

**3.1.3 Ceiling**

EC n° 852/2004 Annex II, Chapter II, 1(c)

**Interpretation**

Ceiling shall be smooth, undamaged and constructed and finished so as to prevent the accumulation of dust, easy to clean, and constructed in such a way as to avoid the entry of insects birds, or any infestation and it should be of a light colour. For land based facilities the ceiling height shall not be less than 3.0 meters.

In vessels pipe lines and other means of conduct must be placed in such a way not to prevent sufficient cleaning of ceilings.



**Inspection method**

Inspection of processing facility or vessel

**Work procedure**

Check if ceiling material is smooth and impermeable.

Check if fittings to ceiling and walls are designed in such a way that it does not hinder proper cleaning and avoid entries of insect or any infestation.

Check if the ceiling surface is undamaged and easy to clean.

Check if ceiling colour is light.

Check if ceiling height in land based plant or facility is at least 3 meters.

Check if pipe lines and other means of conducts are arranged in such a way not to prevent proper cleaning.

**Limits**

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

**3.1.4****Illumination**

91/493/EEC ANNEX CHAPTER 2 (e) & CHAPTER III 2. (f)

**Interpretation**

Illumination must be sufficient for the work carried out in the area. This includes sensory evaluation and inspection for nematodes where appropriate. Illumination in fish processing (facilities and vessels) must be as follows: distributed in a uniform fashion, and avoiding shadow.

Activity	Illumination (lux)
Working surfaces in processing	300 lux
Inspection areas	>300lux

**Work procedure**

Measure illumination with a lux-meter for

Working surfaces in processing	Measure at least 300 lux
Inspection areas	Light intensity must be more than 300 lux

Check if light is distributed in a uniform fashion avoiding shadows.

**Limits**

At least 300 lux on working surfaces areas in processing

More than 300 lux in inspection areas, where the product is being evaluated.

Check if the light has a uniform distribution free of shadow formations

Explanation	Evaluation
Items that are not fulfilled result in	D

### 3.1.5 Surrounding area

EC n° 852/2004 Annex II, Chapter I

#### Interpretation

The outside area of processing facility must be paved in its entire perimeter and the width of the pavement may not be less than 1 meter.

Product entrance and exit opening must have preventive measures in regards of rain water dripping from the roof onto the product while it enters or exits the building.

#### Inspection method

Inspection of processing facility

#### Work procedure

Confirm that the entire perimeter of the building is paved at least 1 meter from the building.

Check if preventive measures are made in regards to rain water leaking onto the product while it enter or exit the building.

#### Limits

Every item must be fulfilled

Explanation	Evaluation
Items that are not fulfilled result in:	D

### 3.1.6 Facility location

EC n° 852/2004 Annex II, Chapter I

#### Interpretation

The installation of processing fishery products must be located in salubrious areas, exempted from smoke, bad smell, dust or other contamination elements that can in any way affect the fishery product being produced and they must be in harmony with public health, municipal, environmental and other regulation in force.

#### Method of Inspection

Inspection of the processing facility surroundings and location

#### Work procedure

Check if the processing facility is in an area exempted from smoke, bad odour, dust or other contaminating elements that might affect the quality of the product.

Check if the processing area is in harmony with public health, municipal and environmental regulations in force.

#### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

## 3.2 Equipment

### 3.2.1 Hand washing

EC n° 852/2004 Annex II, Chapter VIII & Chapter III (2a)

#### Interpretation

Proper hand washing facilities must be in place in areas where staff enter the processing area when process begins and after break. Trench in hand washing facilities may not be hand controlled. The number of hand washing facilities must be sufficient enough so that the waiting time for hand washing when worker enter the area is not too long or at least one basin for each 10 workers. Single use towels must be near to basins and liquid soap and disinfectant for hands. Blowers for drying hand are not allowed. The facility must contain an automatic mixing of hot and cold water. Warm water must be available for hand washing.

#### Method of inspection

Inspection of processing facility or vessel

#### Work procedure

Check if there is one basin for every 10 persons in the processing area;

Check if soap dispenser, single use towels and a disinfectant for hands are available and beside basins;

Confirm that water is not hand controlled at sink;

Check if blending of water is automatic and warm water available.

#### Limits

All items must be fulfilled.

Explanation	Evaluation
Item that are not fulfilled result in:	<b>D</b>

### 3.2.2 Food contact equipment's

EC n° 852/2004 Annex II, Chapter V

#### Interpretation

All food surfaces, including containers, utensils or equipment in contact with fishery products must be made of plain, impermeable and durable materials that are resistant to corrosion, easy to clean and disinfect and not susceptible to alter or contaminate the products.

All equipment s that come in contact with fishery and fish products must at all-time be well maintain and clean.

Wood is not allowed.

For machinery, all mobile parts must be conveniently closed in order to prevent possible contamination of the products from grease and lubricants oils.

**Method of inspection**

Inspection of processing facility or vessel

**Work procedure**

Confirm that all food contact surfaces are made of plain, impermeable and durable materials that are resistant to corrossions, easy to clean and disinfect.

Confirm that food contact equipment is well maintained and clean.

Confirm that wood is not used in the production.

Confirm that machinery mobile parts are closed and grease and oil does not contaminate the floors or outer surface of the machinery.

**Limits**

All items must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>SD</b>

**3.2.3 Non-food contact equipment**

EC n° 852/2004 Annex II, Chapter III & V

**Interpretation**

Equipment, machinery and other that do not come in contact with fish or fish products must be made of material that is resistant to corrosion and easy to clean.

Containers used to collect or store waste must have lids.

**Method of inspection**

Inspection of processing equipment's

**Work procedure**

Confirm that all non-food contact surfaces are made of material that is resistant to corrosion and easy to clean;

Confirm that containers that are used to collect or store waste have covers.

**Limits**

All items must be fulfilled

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

**3.2.4 Transport units**

EC n° 852/2004 Annex II, Chapter IV

**Interpretation**

The containers (units) used for transport of fish and fish products must be closed, isothermal and with walls built with a smooth internal lining that is impermeable and easy to clean and disinfect.

It shall be possible to keep the product in the unit at the desired temperature (0-4°C for fresh products and below -18°C for frozen products).

A temperature recorder must be installed in the transport unit that shows the environmental temperature of the product during transport.

### **Method of Inspection**

Inspection of transport units

### **Work procedure**

Check if the containers are closed, walls isothermal and inner walls smooth and impermeable, easy to clean and disinfect.

Check if the containers are built to keep the temperature of the fish and fish product at the desired temperature.

Confirm that the continuous temperature recorder is in place and operating.

### **Limits**

All items must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

## **3.2.5 Temperature control**

EC n° 852/2004 Annex II, Chapter IX (5)-(6) & EC n° 853/2004 Annex III, Section VIII, Chapter I (B)-(C)

### **Inspection**

Fresh fish must be cooled with ice as soon as possible and stored at the temperature of melting ice. The ice used must be made from potable water or clean seawater. Temperature in cooled products must be lower than 4°C at all time and should be measured and recorded at least when landed and before processing

In frozen products the temperature must be lower than -18°C. Continuous temperature recording must be in every freezing storage and record must be stored one year longer than the shelf life of the product and at least one year longer than the shelf of the product and at least for two years.

### **Method of Inspection**

Inspection of records and location

### **Work procedure**

Measure the temperature of the product.

Check if ice used is sufficient to hold the temperature below 4°C.

Check temperature records of fresh fish for the period since last inspection.

Check if continuous temperature recorders for freezing storages are in place and functional.

Check if data is available for the time period mentioned above.

### **Limits**

For iced products: below 4°C

For frozen products: -18°C

Ice is sufficient to hold the temperature of the product below 4°C.

Temperature is recorded at regular intervals or at least 4 times a day and the recordings stored.

Temperature records kept for two years or one year longer than the product's shelf life.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

### **3.2.6 Ventilation**

EC n° 852/2004 Annex II, Chapter I (5) & (6)

#### **Interpretation**

Good ventilation in both land based facilities and vessels is necessary in order to avoid the built up of odour that might contaminate the product as well as to keep the processing environment as cold as possible to avoid the growth of bacteria.

In case where steam is used and in humid areas proper ventilation must be in place to eliminate possible condensation.

#### **Method of inspection**

Inspection of processing facilities

#### **Work procedure**

Confirm that the ventilation is sufficient to eliminate built up of unpleasing odour.

Confirm if the ventilation is sufficient to maintain a temperature lower than 22°C in the processing area.

Where steam is used and in areas with high humidity, check for condensation.

#### **Limits**

No odour in processing area that could contaminate the product.

Temperature in processing area is less than 22°C

No condensation can be seen.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

## **3.3 Storages**

### **3.3.1 Refrigeration storage**

EC n° 852/2004 Annex II, Chapter IX (5)-(6) & EC n° 853/2004 Annex III, Section VIII, Chapter I (B)-(C)

#### **Interpretation**

Refrigeration storages must be cooled down mechanically in order to keep the temperature of the storage no higher than 4°C for fresh fishery products and -18°C for frozen products.

Condensed water from the cooling mechanism must be conducted with pipes to drainages.

Refrigeration storages must be well maintained and kept clean at all time.

**Method of inspection**

Inspection of processing facilities

**Work procedure**

Record the temperature of the refrigeration storage to confirm that it is lower than 4°C and -18°C.

Check if condensed water from the cooling mechanism is conducted with pipes to drainages.  
Check if the refrigeration storage is well maintained and clean.

**Limits**

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

**3.3.2 Freezing Storages**

EC n° 853/2004 Annex III, Section VIII, Chapter I

**Interpretation**

- The temperature of freezing storages must be kept at all-time -18°C.  
[Fluctuation in the temperature should be avoided as they are harmful for the Product]
- Must have continuous temperature control devices in order to monitor register the temperature of the freezing storages. These records must be kept for one year longer than the shelf life of the product or at least two years. The location of the thermometers must be as far away from the cooling source or in the hottest area in chamber.
- Have chambers or closed environment before the entries to the freezing when charging and discharging the freezing storages unless they are loaded from the top of the storage.
- Have alarms or locks which permit the opening of the freezing storage from the inside in case that someone is closed in storage.
- The freezing storages must be clean and well maintained and without excessive ice formation.

**Method of Inspection**

Inspection of freezing storage

**Work procedure**

- Measure the temperature of the freezing storages and confirm it is lower than -18°C.
- Check if there is a continuous recorder connected to all freezing storages and confirm their reading by comparing it with own measurements.
- Confirm that there is a chamber or closed environment before the entrance into the freezing storage unless the storage is loaded from the top.
- Confirm that the freezing storages are clean, well maintained and without excessive ice formation.
- Check if there is an alarm or locks that permit the opening of the freezing storage from the inside.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

### **3.3.3 Packaging storages**

EC n° 852/2004 Annex II, Chapter X & EC n° 853/2004 Annex III Chapter I (D) & Chapter VI (3)

#### **Interpretation**

- Land based facilities and freezing vessels must have a location of storing packaging materials separated from the area of handling and processing of the products. In freezing vessels, storing of packaging materials in the freezing storage is allowed provided it is fully covered with clean plastic during storage to eliminate possible contamination.
- The packaging storage must be clean, dry, well maintained without any gaps or crack, and free from dust and other possible contamination.

#### **Method of inspection**

Inspection of packaging storages

#### **Work procedure**

Confirm that the packaging storage is separated from the area of fish handling and processing.

Confirm that the packaging storage is clean, dry, well maintained without cracks or gaps and free from dust and other possible contamination.

#### **Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

### **3.3.4 Storage of waste**

EC n° 852/2004 Annex II, Chapter VI & EC n° 853/2004 Annex III Chapter I (D)

#### **Interpretation**

Containers for storing waste must be from materials intended for food production. The containers must be closable, water tight and easy to clean and disinfect. Waste must be removed as soon as the containers are full or at least after each working day or shift. If waste is not continuously removed, it must be put into water tight, closed containers. Waste may not be piled up during processing. Storing of waste may not cause risk of contamination in the processing. Containers for waste may not be used for fish products or by-products.

#### **Method of inspection**

Inspection of facilities or vessel

#### **Work procedure**

Confirm that containers used for waste are material intended for food production; they are closable, water tight and easy to clean and disinfect.



Confirm that waste is removed before the container is full or at least after each working day or shift.

Confirm that waste is not piling up in the processing.

Confirm that the waste storage is not causing a risk of contamination to the product.

Confirm that containers for waste are not used for fish and fish products or by-products

#### **Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

### **3.3.5 Storage of detergents and chemicals for cleaning**

---

#### **Interpretation**

All cleaning and disinfectants, insecticides and other potentially toxic substances must be stored in closed places intended for that purposes when not in use. The chemicals may not be stored where they could possibly contaminate the product or the production. These chemicals may not be used during production.

#### **Method of inspection**

Inspection of facilities or vessel

#### **Work procedure**

Check if disinfectants, insecticides and other potentially toxic substances are stored in closed places or compartments when not in use.

Confirm that the storage of these chemicals do not provide danger of contaminating the product or the production.

Confirm that these chemicals are not used during production.

#### **Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfil result in:	<b>D</b>

### **3.4 Design**

#### **3.4.1 Changing rooms**

---

EC n° 852/2004 Annex II, Chapter I, II, III & VIII

#### **Interpretation**

Changing rooms must have an illumination of at least 300 lux adequately ventilated to prevent built up of odour and condensation.

Have walls of light colour, impermeable and washable up to a height of 2 meters.

Have floors with resistant material, impermeable, washable, possible to disinfect and with drainage.

Have lockers for each personnel that can be washed and disinfected.

Work cloths must be stored separately from private clothing in such a way that cross contamination is eliminated.

**Method of inspection**

Inspection of facilities or vessel

**Work procedure**

Confirm that changing rooms are adequately ventilated in order to eliminate build-up of odour and condensation and have illumination of at least 300 lux.

Confirm that walls are of light colour, impermeable and washable up to 2 meters.

Confirm that floors are of resistant material, impermeable, washable, and possible to disinfect and have drainages.

Confirm that lockers are available for every worker that is possible to wash and disinfect.

Confirm that work clothes are kept separated from private clothing and that no cross-contamination can occur between these cloths.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

**3.4.2****Showers**


---

EC n° 852/2004 Annex II, Chapter I, II, III & VIII

**Interpretation**

Shower must be available in accordance with number of workers and gender based on the following:

1 Shower for 1 to 20 workers

2 showers for 21 to 40 workers

Additional shower for every 20 additional workers

Piped portable water must be available in adequate quantity in order to provide all personnel proper bathing before and after work.

Soap in soap dispenser and towels must be available for all the workers before and after work.

**Method of inspection**

Inspection of bathing facilities

**Work procedure**

Confirm that the numbers of showers are according to the above.

Confirm that piped portable water is in adequate quantities to provide bathing of all workers before and after work.

Check if adequate liquid soap is available and in soap dispensers for all workers to wash before and after work.

Confirm that towels are available for all workers.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

### 3.4.3 Toilets

EC n° 852/2004 Annex II, Chapter I, II, III & VIII

#### Interpretation

Water toilets must be available in accordance to the number and gender of the workers as indicated below:

- 1 toilet for 1 to 9 workers
- 2 toilets for 10 to 24 workers
- 3 toilets for 25 to 49 workers
- 4 toilets for 50 to 100 workers
- Additional toilet for every additional 100 workers

Only water toilets are allowed.

Water supply should be sufficient to fill the water toilets immediately after each use.

Doors into toilets must have automatic closing devices and may not open directly into a processing area.

By the toilets there must be a wash basin with a soap and disinfectant dispensers and paper towels.

#### Method of inspection

Inspection of toilet facilities

#### Work procedure

Confirm that the number of water toilets is in accordance to the above and that the water supply is sufficient to fill the toilet reservoir immediately after each use.

Confirm that doors into toilets have automatic closing devices and that they do not open directly into processing area.

Confirm that wash basin are by toilet in equal number as the toilets and by each wash basin are soap and disinfectant dispenser and paper towels.

#### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

### 3.4.4 Receiving area

EC n° 852/2004 Annex II Chapter I, II, III & EC n° 853/2004 Annex III, Section VIII, Chapter I, Part 1(D)

#### Interpretation

The receiving area must be closed and separated from other work area, outside environment in order to protect the fish from sun, weather and any contamination.

Chemicals or materials that may contaminate the fish or fish product may not be stored or located in the receiving area.

#### Method of inspection

Inspection of the receiving area

#### Work procedure

Confirm that receiving area is closed and separated from other work area, the outside environment or other areas that might contaminate the product.

Confirm that any chemicals or materials that might contaminate the fish is not stored or located in the receiving area.

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

## 3.4.5 Processing area

EC n° 853/2004 Annex III, Section VIII, Chapter I, Part 1(D)

### Interpretation

Processing areas must be planned in such a way to allow the fish product to be handled and processed in hygienic conditions.

The work area must have enough space to allow an efficient development of the operations of processing without causing prejudice to the guarantee of hygienic and sanitation quality.

The general layout of the installations must guarantee a logical flow of work that reduces the risk of contamination or cross-contamination from the entry of the raw material to the dispatch of the finished product.

### Method of inspection

Inspection of the facilities or vessel

### Work procedure

Confirm that the layout of the processing area and the product flow does not cause any risk of contaminating the product or risk of cross-contamination.

Confirm that the processing area is planned and installed in such a way to allow proper cleaning and disinfecting.

### Limits

Every item must be fulfilled

Explanation	Evaluation
Items that are fulfilled result in:	<b>D</b>

## 3.5 Personnel

### 3.5.1 Work cloths

EC n° 852/2004 Annex II, Chapter VIII

### Interpretation

All personnel working in fish processing (including packing) must wear work cloths of light colour. Outside pockets are not allowed on work cloths. Gloves that come in contact with the fish product must be washed and sterilised when entering the work area and more frequently if

needed. Gloves and aprons must be whole, watertight and clean at all times. Work cloths may not be worn outside processing area and may not travel between clean and unclean areas. Everyone working with unprotected fish products must have hairnets that cover the hair completely.

Rules regarding work cloths apply to everyone entering the processing area.

### **Method of inspection**

Inspection of facility or vessel

### **Work procedure**

Confirm that everyone located in the processing area are wearing work cloths of light colour and hairnets.

Confirm that gloves and aprons are undamaged, clean and watertight.

Confirm that work cloths do not have outside pockets.

### **Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

## **3.5.2 Housekeeping and rules**

EC n° 852/2004 Annex II, Chapter VIII

### **Interpretation**

Smoking (or any other kind of tobacco use), spitting, consumption of food and drinks is prohibited in processing and storing areas and other areas where fish is handled in any way. Personnel working in fish processing may not use any jewellery except simple wedding rings.

### **Method of inspection**

Inspection of the facility or vessel

### **Work procedure**

Observe personnel behaviour in the processing and storage areas where fish is handled or stored. Check if cigarette stubs, empty food containers etc. can be found in the processing area or where fish is handled.

Check if personnel's are wearing jewellery other than simple rings.

### **Limits**

Every item must be fulfilled

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

## **3.5.3 Hand washing**

EC n° 852/2004 Annex II, Chapter VIII & Chapter III (2a)

**Interpretation**

Personnel must wash their hand when:

1. Before they start work in the beginning of a shift or after a break.
2. Each time after contact with contaminated surface or material.
3. After the use of toilet.
4. When going from a low risk area to a high risk area.

Hand wounds must be covered with watertight bandages.

Hands must be disinfected after washing;

If the gloves are used, the gloves be washed the same way as hands.

**Method of inspection**

Inspection of the facility or vessel

**Work procedure**

Check if personnel clean their hands as described above (possible);

Check if watertight bandages are available and used where appropriate;

Confirm that hands are disinfected after washing

**Limits**

Every item must be fulfilled

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

**3.6 Pest control****3.6.1 Pest control**

EC n° 852/2004 Annex IX

**Interpretation**

All drainages must be covered with sieves of mesh size no more than 12 mm in diameter.

Water locks must be on pipes from the floor to outside;

All windows that can be opened must be covered with whole, undamaged fly nets to prohibit the entrance of flies;

In ventilation system, a fly net must be located somewhere on its way to the outside with a mesh size to prohibit entrance of the smallest flies;

All doors must be closed tightly in such a way that gaps must not be more than 3 mm. Doors to the outside must be closed when not in use, that is, they may only be opened during time of loading and unloading goods or when people are entering or exiting;

All trash and unused things both inside and outside the processing facility that can manifest pest must be removed.

Stores must be designed to allow easy control of rodents.

**Method of inspection**

Inspection of the facility or vessel

**Work procedure**

Confirm that all drainages are covered with sieves of mesh size no more than 12 mm in diameter, and that drainage pipes have water-locks;

Confirm that fly nets are in all windows that can be opened and in the ventilation system and that the nets are whole and tight;

Check if a suitable fly net is used in connection with the ventilation system.

Check if gaps in closed doors are more than 3 mm;

Confirm that no manifestation for pests is in and around the processing facility.

Check if food is available for pests.

Check if the traps fly exterminators are located as described in the pest extermination plan.

Check if storages for packaging and other materials are easily monitored if signs of rodents are in the rooms.

### Limits

Every item must be fulfilled.

Explanation	Evaluation
Items that are not fulfilled result in:	<b>D</b>

## 3.7 Fish handling

### 3.7.1 Fishing port

EC n° 852/2004 Annex II Chapter I, II, III & EC n° 853/2004 Annex III, Section VIII, Chapter I, Part 1(D)

#### Interpretation

Port facilities that receive and handle fisheries products must:

1. Be covered and have walls that are easily cleanable;
2. Have an impermeable floors that are easy to wash and disinfect and the slope of the floors to the drainages must be at least 1.5% in order for residual water to run freely to the drainages;
3. Be sufficiently illuminated (not less than 300 lux) in order to facilities the sanitation control and inspection of the handling and commercialisation activities;
4. Have available portable water in adequate quantity for supplying the vessels, for handling and cleaning for the landed catch and for cleaning the facility;
5. Have devices or installation for storing or eliminating factory residuals;
6. Have toilets in sufficient numbers both for use of the fishing port and for the permanent staff.

#### Method of inspection

Inspection of transport units

#### Work procedure

Confirm that port facilities that receive and handle fishery products are covered, have easily cleanable walls, have impermeable floors that are easy to clean and disinfect with a slope of at least 1.5% to drainages;

Confirm that the illumination is at least 300 lux;

Confirm that portable water is available in adequate quantity.

Confirm the presence of installation for storing eliminating fishery residual;

Confirm that the number of toilets is in accordance chapter 3.4.2.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

**4. Processing****4.1.1 Packaging**

EC n° 852/2004 Annex II Chapter X & EC n° 853/2004 Annex III, Section VIII, Chapter VI

**Interpretation**

The amount of packaging material in the processing area may not be more than for a day's use as source of contamination of the product. Packaging material must be stored in a packaging storage that they are not exposed to a risk of contamination.

Protective covers of packaging material must be removed before the packaging material enters the processing area. Packaging material re-used for product stored is to be easy to clean and, where necessary to disinfect.

**Method of inspection**

Inspection of facility or vessel

**Work procedure**

Check if the amount of packaging material in the processing area is more than for a day use.

Check if protective covering of the packaging material is removed before it enters the processing area.

Check if packing material re-used for product stored ifs easy to clean and disinfect.

**Limits**

Every item must be fulfilled.

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

**4.1.2 Cooling and freezing**

EC n° 853/2004 Annex III, Section VIII, Chapter I (B) & (C)

**Interpretation**

When fresh unpacked fish is not processed as soon as it arrives at a processing facility it must be iced or cooled mechanically and stored at a temperature of melted ice. The fish must be re-iced as necessary. If there is a delay in processing the product must be iced in order to lower the temperature.

Temperature of chilled products must be lower than 4°C and in frozen products must be lower than -18°C.



**Method of inspection**

Inspect products in reception and in freezer and confirm that if there is a delay in processing that the product being produced is iced properly.

**Work procedure**

Measure the temperature of the raw material in reception.

Measure the temperature of the frozen products.

Measure the temperature of the products in the processing if the processing is suffering a delay.

**Limits**

Lower than 4°C for raw materials and product suffering considerable delay in processing.

Lower than -18°C for frozen products

<b>Explanation</b>	<b>Evaluation</b>
Items that are not fulfilled result in:	<b>D</b>

**4.1.3 Landing of catch**

EC n° 853/2004 Annex II, Section VIII, Chapter II

**Interpretation**

When fish products are landed iced or frozen they must be transported into a closed area that fulfils the requirement of section 3.2.5. This is to protect the product from weather and possible contamination from birds, insects etc. If transport of the product to a closed area is delayed, the container must be closed.

**Method of inspection**

Inspect landings site

**Work procedure**

Confirm that the landed catch is transported into a closed area immediately.

Confirm that the landed container is closed if any delay is experienced during the landings of catch.

**Limits**

Landed catch is protected.

<b>Explanation</b>	<b>Evaluation</b>
Landed catch not protected result in	<b>D</b>

**4.2 Transport****4.2.1 Transport of chilled products**

EC n° 853/2004 Annex III, Section VIII, Chapter VIII & Chapter I (B)

**Interpretation**

[The competent authority must register transport of fishery products].

Fresh fish and fishery products should be kept at a temperature of melting ice and never higher than 4°C.

If ice is used for cooling, the melting ice must be drained from container.

The volume of products in each container used for transporting fish products may not exceed 40kg.

Fish and fish products may not be transported with other goods that can possibly contaminate the products or affect the product wholesomeness unless packed in such a way as to prevent possible cross-contamination.

Fish and fish product may not be transported in a transport unit or containers that has not been washed and disinfected prior to use.

**Method of inspection**

Inspection of transport facility or vessel

**Work procedure**

Measure the temperature of the product before or after transport.

Confirm there is sufficient draining from the containers.

Confirm that the amount of product in each container does not exceed 40kg.

Confirm that the transport unit and containers have been cleaned and disinfected prior to the transport.

**Limits**

4°C chill product

Melted ice and fish juice drained off

40kg

Transport unit and containers clean.

Explanation	Evaluation
Items not fulfilled result in:	<b>D</b>

**4.2.2 Transport of frozen products**

EC n° 853/2004 Annex III, Section VIII, Chapter VIII

**Interpretation**

The competent authority must register transport of fishery products.

Frozen products shall be kept below -18°C and transported in closed transport units.

The temperature is however occasionally allowed to rise slightly during the transport of shorter distances, provided the rise in temperature is never more than 3°C.

A temperature recorder must be installed in the transport unit that shows the environmental temperature of the product during transport.

Frozen fish products may not be stored or transported with products that could possibly contaminate them unless properly protected from possible contamination.

Transport units or containers used for the transport of fishery products must be cleaned and disinfected prior to use.

**Method of inspection**

Inspection of all transport units

**Work procedure**

Measure the temperature of the product before or after the transport and both if possible

Confirm that that temperature records are available and within limits.

Confirm that no other products or materials are being transported simultaneously that could contaminate the fish product in any way.

Check if the transport unit or container is clean and disinfected prior to transport.

**Limits**

Temperature of product in general not higher than -18°C;

Temperature records are available and shows temperature lower than -18°C during transport;

Temperature never rises more than 3°C during transport.

No other products or materials in the transport unit that might contaminate the fishery product.

Transport unit or container clean.

<b>Explanation</b>	<b>Evaluation</b>
Item that are not fulfilled result in:	<b>D</b>

### APPENDIX 3b: Inspection Reporting Check List

Establishment/Vessel:	License/Identification No.
Inspector Name:	Date:

N0.	Item to Inspect/Description of Defect	X	D	SD
2.0	<b>Quality Control</b>			
2.1	<b>Base and Management of Quality Control</b>			
2.1.1	<b>Basic Quality Control Information</b> -Is there available an organisational chart, describing the responsibility of production management? -Is the work description for responsible persons in the quality control system available? -Is there a product description for each product or product groups? -Is there a process flow diagram for the product being produced? -Is there available description for the process or process flow? -Is there a blueprint of the process facility/vessel and is there sufficient space to carry out the work under sanitary and hygienic condition? -Does the layout prevent contamination?	( ) ( ) ( ) ( ) ( ) ( ) ( )	( ) ( ) ( ) ( ) ( ) ( ) ( )	
2.1.2	<b>Document filing</b> -Are there documents available for the quality control at least one-two year longer than the shelf life of the product?	( )	( )	
2.1.3	<b>Sanitation license and inspection certificate</b> -Is there available a sanitation license and up to date? -Is there any former inspection certificates?	( ) ( )	( ) ( )	
2.1.4	<b>Corrective action</b> -are all corrective actions being fulfilled? -Is there any item from last inspection not fulfilled? -is there any written authorisation for prolongation from the CAD/BNF?	( ) ( ) ( )		( ) ( ) ( )
2.1.5	<b>Informing of possible hazard</b> -Is there any possible hazard being detected in the establishment and reported to CAD/BNF and corrective actions done due to knowledge or suspicion of hazards like bacteria's or poisonous chemicals?	( )		( )
2.1.6	<b>Labelling</b> -Is the country of origin and sanitary number clearly label on the outside panel of the packaging material? -Is the labelling in accordance with regulation?	( ) ( )	( ) ( )	
2.1.7	<b>Verification</b> -Has verification been conducted where HACCP is used? -Is the procedures verification in place? -Were the microbiological samples sent to an approved laboratory every three months? -Are the test results at the production site?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
2.2.1	<b>Mandatory documentation</b> -Is there available a product description documentation(composition of the final product, method of conservation, packaging and labelling, storing conditions of raw material and final product, shelf life, how the final should be prepared for consumption and means of distributing the product)? -Is there available a product flow chart document that include the position of the critical control points? -Are the steps in the flow chart clearly described in document? -Is there an up to date documentation?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
2.2.2	<b>Hazard Analysis</b> -Do the quality control personnel understand the results of the hazard analysis? -Are there any new quality control personnel and do they have understanding on hazard analysis? -Are there any <u>major</u> changes been done on the processing, housing and equipment that could affect the safety of the product? -Has the hazard analysis been re-evaluated and confirmed by the CAD/BNF?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
2.2.3	<b>Critical control points (CCPs) determination and setting of limits</b>			

	-Are there available documents to select randomly 3 production dates from last inspection to enable the inspector to pick two CCP? -Are there available all document related to these two CCP for all the dates selected? -Is there confirmation to show that monitoring has been conducted according to HACCP system and limits exceeded that corrective action has been made?	( ) ( ) ( )		( ) ( ) ( )
2.2.4	<b>Control, Documentation and Corrective actions</b> -Are there available all documentation on own checks for inspection or measurement done in connection to the control of the CCPs?	( )	( )	
2.3.1	<b>Traditional method</b> -Is the traditional quality control system approval by the CAD/BNF? -Is the traditional quality control system easily available at the production site? -Is the quality control system applied in accordance to the processing procedures at the facility/vessel?	( ) ( ) ( )	( ) ( ) ( )	
2.3.2	<b>Required procedures and documents</b> -Are the items mentioned in 2.3.2 of the inspection manual made available in procedures? -Are the documents in place and implemented accordingly?	( ) ( )	( ) ( )	
2.4.1	<b>Health control</b> -Is there available list of all people working or people who enter the production area to at least be able to pick 5 names to confirm that they have valid health certificate? -Is there available a general written rules on how to prevent that sick people are working and how these rules are applied?	( ) ( )	( ) ( )	
2.4.2	<b>Training and knowledge of staff</b> -Do the responsible persons have experience and training in quality control and own checks in fish processing, cleaning and sanitation, general hygiene, pest control, fish processing flow and chemical used in fish production? -Do all the personnel working in quality control have minimum knowledge in quality control?	( ) ( )	( ) ( )	
2.5.1	<b>Water and Ice</b> -Is the water quality monitor in accordance to (EC) No. 852/2004 Annex II, Chapter VII and result are in set limits? -Is ice made from water that fulfils the criteria in the above mentioned EU regulation? -Are ice machines clean and disinfected and the transport, storage and handling of ice eliminating possible contamination? -is the ice making system closed and protected from any outside contamination? -Is the microbiological testing exceeded the set and CAD/BNF informed?	( ) ( ) ( ) ( ) ( )		( ) ( ) ( ) ( ) ( )
2.5.2	<b>Clean seawater</b> -Is seawater used in processing? If so, are the samples taken for microbiological testing at least twice a year and the result are within set limits?	( )		( )
2.5.3	<b>Non- portable water</b> -Is there available non portable water in the establishment/vessel and that cross- contamination does not occur? -Are all lines and outlets for non- portable water painted in contrasting colour for immediate identification?	( ) ( )	( ) ( )	
2.5.4	<b>Design</b> -Is there available drawing of the vessel showing the location of the sea water intake and is there a risk for contamination from outlets? -Are the pipes whole and well maintained and less than 10m long and kept hanged up when not in use? -Are the valves (outlets) numbered?	( ) ( ) ( )	( ) ( ) ( )	
2.5.5	<b>Waste and waste water</b> -Is there adequate and hygienic waste and waste water disposal system? Can the waste water system transport all waste and waste-water at once? -Are there any waste-water pipes leakage and are not place over food contact surfaces? -Is the waste-water system designed to avoid any contamination from toilet or other polluting waste? -Are there drawings in the facility /vessel to show the waste and waste-water system and up to date?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
2.6.1	<b>Pest extermination plan</b> -Is there any pest extermination plan and that the plan contains a list of numbered of traps and fly exterminators or otherwise identifying or drawings to show their location? -Is there a frequency plan to monitor the traps and baits?	( ) ( ) ( )	( ) ( ) ( )	

	-Is the trap monitor according to the exterminator plan, example if food is available for pests, is any sign of pest can be seen? -Are there actions taken when and if pests are present?	( )	( )	
2.6.2	<b>Rodent traps and insect traps</b> -Is there available sign of location and content of the traps and everything is in according to the plan? -Are the traps working and designed to avoid contamination and that poison is not used inside the processing facility/vessel?	( )	( )	
2.6.3	<b>Fly exterminators</b> -Are available fly exterminator at least one in all processing area, packaging material storages at the entrance to these areas and the equipment is connected and in order? - Are the light bulbs changed according to the instruction of the producer of the equipment or twice a year? -Is the exterminator clean and record available for checking that this is done regularly?	( )	( )	
2.7.1	<b>Sanitation plan and confirmation of cleaning</b> -Is there available a sanitation program that includes cleaning of both food contact surfaces and non-food contact surfaces? -Is the cleaning in accordance to the sanitation program and documented? -Are the quality control records showing results from the contact surfaces testing indicate sufficient cleaning? -Are the samples of the final product sent to an approved laboratory at least every 6 months for microbiological testing to confirm cleaning and sanitation? -Is there any attestation available to show that the cleaning agents and disinfectants used are approved for food industry?	( )	( )	
2.8.1	<b>Inventory control</b> -Is there available record to show that information is submitted every 15 days to the CAD/BNF and that the information on the origin of the catch processed is clearly stated?	( )	( )	
2.8.2	<b>Freezing capacity</b> -Are there documents to verify that all freezing equipment and the freezing capacity is control at least once a year?	( )	( )	
2.9.1	<b>Approved additives</b> -Are additives used in the processing or found in the facility/vessel and are they permitted by the CAD/BNF and Ministry of Health and Social Welfare? -Is the concentration of the additives in the final product adjusted below the limit set by the Country?	( )	( )	
2.9.2	<b>Packaging material</b> -Can the packaging materials cause any changes in the characteristics of the fishery product (like strong odour etc.)? -Is the statement from the producer of the packaging materials in place stating that the packaging materials is intended for food products and do not contain any chemicals that might cause threat to the consumer? -Is the packaging material resistant and protects the fish product and not re-used?	( )	( )	
3.0	<b>Premises</b>			
3.1	<b>Building</b>			
3.1.1	<b>Walls and doors</b> -Are the walls in wet areas impermeable and have easy to wash surface areas up to at least 1.8 meters? -Are the walls having light colours, smooth, resistant and with no crack? -Are the walls easy to clean and disinfect? -Are the joint to the floor in wet area round? -Are the doors resistant, impermeable, and easy to clean, disinfect and closed?	( )	( )	
3.1.2	<b>Floors</b> -Are the floors in wet areas made of impermeable and anti-slip material that is easy to clean and disinfect? -Are the floors in wet areas in Land-based facilities have slope not less than 1.5%? -Are the floors in dry area smooth, resistant, easy to clean and surface area whole and undamaged?	( )	( )	
3.1.3	<b>Ceilings</b> -Is the ceiling material smooth and impermeable? -Are the fittings to the ceiling and walls designed in such a way that it does not hinder proper cleaning and avoid entries of insects or any infestation?	( )	( )	

	-Is the ceiling surface undamaged and easy to clean and ceiling colour light? -Is the ceiling height in land base establishments at least 3 meters? Are the pipelines and other means of conducts arranged in such a way not to prevent proper cleaning?	( ) ( ) ( )	( ) ( ) ( )	
3.1.4	<b>Illumination</b> -Is the light distribution in a uniform fashion avoiding shadow and light intensity more than 300 lux?	( )	( )	
3.15	<b>Surrounding area</b> -Is the entire perimeter of the building paved at least 1 meter from the building? -Is any preventive measure in regard to rain water leaking onto the product during entry or exits from the building?	( ) ( )	( ) ( )	
3.1.6	<b>Facility location</b> -Is the processing facility in an area exempted from smoke, bad odour, dust or other contaminating elements that might affect the product quality? -Is the processing area in harmony with public health and environmental law?	( ) ( )	( ) ( )	
3.2	<b>Equipment</b>			
3.2.1	<b>Hand washing</b> -Is there one basin at least for every 10 persons in the processing area? -Is there available soap dispenser, single use towels and a disinfectant for hands? -Is blending of water automatic and warm water available?	( ) ( ) ( )	( ) ( ) ( )	
3.2.2	<b>Food contact equipment's</b> -are the food contact surfaces made of plain, impermeable and of durable materials and resistant to corrosion, easy to clean and disinfect? -Are the food contact equipment well maintain and clean and wood not use in the production? -Are the machinery mobile parts closed and grease or oil does not contaminate the floors or outer the surface of the machinery?	( ) ( ) ( ) ( )		( ) ( ) ( ) ( )
3.2.3	<b>Non-food contact equipment's</b> -Are they made of resistant material to corrosion, easy to clean and container used to collect fish have cover?	( )	( )	
3.2.4	<b>Transport units</b> -Are the containers inner walls smooth, impermeable easy to clean and disinfect? -are the containers built to keep the temperature of fish and fish product at the desired temperature? -Is there a continuous temperature recorder in place and operating?	( ) ( ) ( )	( ) ( ) ( )	
3.2.5	<b>Temperature control</b> -Is there sufficient ice to hold the product at a temperature below 4°C? -Is there available a temperature records of fresh fish for the period since last inspection? -Are there continuous temperature recorders for freezing storages in place and functioning?	( ) ( ) ( )	( ) ( ) ( )	
3.2.6	<b>Ventilation</b> -Is the ventilation sufficient to eliminate unpleasing odour and adequate enough to maintain a temperature lower than 22°C in the processing? -Is there high humidity or condensation or good attraction of water vapour?	( ) ( )	( ) ( )	
3.3	<b>Storages</b>			
3.3.1	<b>Refrigeration storages</b> -Is the temperature of refrigeration storage capable of maintaining the temperature lower than 4°C and the storage well maintain and clean? -Is the condensed water from the cooling mechanism conducted with pipes drainages?	( ) ( )	( ) ( )	
3.3.2	<b>Freezing storages</b> -Is the temperature of the freezing storage sufficient to keep fish temperature lower than -18°C? -Is there a continuous temperature recorder connected to all freezing storages and the reading compare to own measurements? -Is there any alarm or locks that permit the opening of the freezing storage from inside? -Are the freezing storages clean, well maintained and without excessive ice formation?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
3.3.3	<b>Packaging storages</b> -Are there separation between the packaging storage and area of fish handling and processing? -Is the packaging storage clean, dry, well maintained without cracks or gaps and free from dust and other contamination?	( ) ( )	( ) ( )	
3.3.4	<b>Storage of waste</b>			

	<ul style="list-style-type: none"> <li>-Are the containers used for waste intended for food production and are they closed, water tight and easy to clean and disinfect?</li> <li>-Are the waste removed before the container is full or at least after each working day?</li> <li>-Is waste not pill up in processing area and the waste storage not causing risk of contamination to the product?</li> </ul>	( )	( )	
3.3.5	<p><b>Storage of detergents and chemicals for cleaning</b></p> <ul style="list-style-type: none"> <li>-Are the disinfectants, insecticides, and other potentially toxic substances stored in closed places when not in use?</li> <li>-Is the storage of the chemicals does not provide danger of contaminating the product or the production or are the chemicals use during production?</li> </ul>	( )	( )	
3.4	<b>Design</b>			
3.4.1	<b>Changing rooms, showers and toilets</b>			
.2	-Are the changing rooms adequately ventilated to remove built up odour and condensation and have illumination of at least 300 lux?	( )	( )	
.3	<ul style="list-style-type: none"> <li>-Are there walls having light colour, impermeable, washable possible to disinfect and have drain?</li> <li>- are lockers for each worker, area to keep work cloth separated from private cloth and no cross contamination?</li> <li>-Is there adequate number of shower for workers?</li> <li>-Is there adequate number of toilets available for workers?</li> <li>-Is there adequate liquid soap and soap dispenser available for all workers to wash before and after work?</li> <li>-Do the toilets open directly to the fish handling and processing area and have automatic closing devices?</li> <li>-Are they equipped with working water flushing system?</li> <li>-Are hand washing and disinfecting system available?</li> <li>-Are disposal hand towels available and wash basin tap hand operated?</li> </ul>	( )	( )	
3.4.4	<p><b>Receiving area</b></p> <ul style="list-style-type: none"> <li>-Is the receiving area closed and separated from other work areas, the outside environment or other areas that might contaminate the fish?</li> <li>-Are there any chemicals or materials that might contaminate the fish is not store in the receiving area?</li> </ul>	( )	( )	
3.4.5	<p><b>Processing area</b></p> <ul style="list-style-type: none"> <li>-Does the layout of the processing area and product flow prevent any risk of contaminating the product or risk cross contamination?</li> <li>-Is the processing area plan and install in such a way to allow proper cleaning and disinfecting?</li> </ul>	( )	( )	
3.5	<b>Personnel hygiene</b>			
3.5.1	<p><b>Work cloth</b></p> <ul style="list-style-type: none"> <li>-Does everyone in the processing area wear work of light colour and hairnet?</li> <li>-Are gloves and aprons undamaged, clean and watertight and work cloth does not having outside pockets?</li> </ul>	( )	( )	
3.5.2	<p><b>Housekeeping and rules</b></p> <ul style="list-style-type: none"> <li>-Are there any measures/rules in place to observed personnel behaviour in processing and storage areas and all area where fish is handled or stored?</li> <li>-Are there present of cigarette stubs, empty food containers, wearing of jewellery other than simple wedding rings found in the processing area?</li> </ul>	( )	( )	
3.5.3	<p><b>Hand washing</b></p> <ul style="list-style-type: none"> <li>-Do the personnel clean their hands before starting work and after break?</li> <li>-Are there available water tight covers and use where appropriate?</li> <li>-Are there available any record to know whether personnel wash their hands?</li> </ul>	( )	( )	
3.6	<b>Pest control</b>			
3.6.1	<p><b>Pest control</b></p> <ul style="list-style-type: none"> <li>-Are the drainages covered with filters of mesh size no more than 12mm in diameter and that the drainage pipes have water-lockers?</li> <li>-Are there available fly nets that are in whole and tight in all windows that are opened and also in the ventilation areas?</li> <li>-Are the fly nets in connection with the ventilation system?</li> <li>-Are the gaps in closed doors more than 3mm?</li> <li>-Are there any manifestation of pests in and around the processing facility and food available for pest?</li> <li>-Are the traps and fly exterminators located as is being described in the pest extermination plan?</li> </ul>	( )	( )	



3.7	<b>Fish handling</b>			
3.7.1	<b>Fishing ports</b> -are the port facilities that receive and handle fishery products covered, have easily cleanable walls, impermeable floors that are easy to clean and disinfect with a slope of at least 1.5% of the drain? -Is the illumination at least 300 lux and are there available portable water in adequate quantity? -Is there any sign/presence of installation for storing/eliminating fishery residues? -Is available adequate number of toilets for workers?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
4.0	<b>Processing</b>			
4.1.1	<b>Packaging</b> -Is the packaging material in the processing area more than for a day use? -Is the protective cover of the packaging material removes before it enters the processing area?	( ) ( )	( ) ( )	
4.1.2	<b>Cooling and freezing</b> -Is the temperature of the raw materials measure and recorded in the reception area? -Is the temperature of the frozen products measure and recorded? -Is the temperature of the products measure in the processing if the processing suffers a delay?	( ) ( ) ( )	( ) ( ) ( )	
4.1.3	<b>Landing of catch</b> -Is the landed catch transported into a closed area immediately? -Is the landed container/hatchery closed even if a delay is experienced during landing of catch?	( ) ( )	( ) ( )	
4.2.1	<b>Transport of chilled product</b> -Is the temperature of the product measure before or after transport? -Is there sufficient draining from the containers? -Is the amount of product in each container exceeding 40kg? -were the transport unit or containers clean and disinfected prior to the transport?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	
4.2.2	<b>Transport of frozen products</b> - Is the temperature of the product measure before or after transport? -Is the temperature records available and within limits? -Are there other products or material transported along with the fish product that could contaminate the fish product in any way? -Is the transport unit or container clean and disinfected prior to transport?	( ) ( ) ( ) ( )	( ) ( ) ( ) ( )	

## Checklist for assessment of small-scale boats

<b>Assessment of small-scale boats/canoes</b>	
<b>Reason for inspection: To ensure fish products quality and safety</b>	
Owner name:	Boat/canoe registration number:
Name of inspection:	Date of inspection:

<b>Sanitary conditions to handling and hygiene operation</b>				
	<b>X</b>	<b>D</b>	<b>SD</b>	<b>Comments</b>
<b>2.4 Health control</b>	( )	( )		
Is medical record available for crew member?	( )	( )		
Is the crew health and hygiene monitor?	( )	( )		
Are there adequate personal hygiene?	( )	( )		
<b>2.5.1 Water and Ice</b>				
Ice originated in an approved establishment?	( )		( )	
Is the ice quantity used sufficient for the fishing time?	( )		( )	
Is the ice handle hygienically during fishing time?	( )		( )	
<b>3.2 Equipment</b>				
Is the boat/canoe clean after landing catch?	( )	( )		
Are fish boxes cleaned after each use?	( )	( )		
Is the boxes only use for landing catch and clean?	( )	( )		
Are the fishing gear and equipment easy to clean and well maintain?	( )	( )		
<b>3.3 Packaging &amp; Storage</b>				
Oil and fuel separated?	( )	( )		
Are the fish boxes modified insulated and easy to clean, in good condition with drainage?	( )	( )		
<b>3.7 &amp; 4.1.3 Fish handling and Landing of catch</b>				
Is the handling and landing of the catch rapid and hygiene?	( )	( )		
<b>3.4.4 Receiving</b>				
Is the product protected from sun and the environments?	( )	( )		
<b>Summary of defect found and correctives actions requested</b>				
Defects	Correction date limit	corrected	commentaries	
Observations:				
Conclusions:				

Inspector's signature: \_\_\_\_\_

Fisher's signature: \_\_\_\_\_

### Corrective Action form

