PAPUA NEW GUINEA STANDARD

FISH AND FISHERY PRODUCT

FOOD SAFETY AND TRADE REQUIREMENTS

Part 1: Facility and Processing Requirements

Part 2: Export Requirements

Part 3: Import Requirements

Gazettal Number: PNGS 1710: 2019

NATIONAL FISHERIES AUTHORITY

PNG Standard for Fish and Fishery Product 2019

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JOHN EDWARD KASU

Managing Director

National Fisheries Authority (NFA)
Kina Bank House, 11th Floor, Douglas Street, Down Town
P.O Box 2016, Port Moresby
National Capital District
Papua New Guinea
Tel: +675 309 0444
Fax: +675 320 2016
Website: www.fisheries.gov.pg

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FOREWORD

The Fisheries Act defines the mandated roles and responsibility of the PNG National Fisheries Authority (NFA). The Act empowers NFA to manage, control and regulate all of PNG's fisheries resources. The Fisheries Act makes provision relating to regulating and providing quality and safety standards for the capture, storing, transporting and processing of fish and fishery products for domestic consumption and for export. The Fisheries Act now makes certain provision relating to imports of fish and fishery products.

The PNG Standards for Fish and Fishery Products (PNGSFFP) is a legal instrument with the fundamental objective to ensure consumer protection and public health. This now sets the PNG regulatory framework for seafood safety and facilitation of trade, respecting specific market hygiene rules and market access requirements to ensure fish caught and traded are caught from legal sources that comply with all relevant laws and regulations of the flagged states and also the conservation and management measures.

The PNGSFFP 2019 upon gazettal becomes a subordinate legislation and has legal effect. The National Fisheries Authority is empowered to enforce and implement the Standard in its entirety.

The PNGSFFP 2009 needed to undertake the review due to the standard being ten years (10) old. In addition, growth and development in the fisheries sector, with new market access rules and regulations set by importing countries, coupled with fishing industries advancing into new product development using advanced technology, new equipment and machinery and new scientific studies and publications. The review was done by the NFA Technical Team, and the review also took into consideration the recommendations from external reviews from regional organizations and PNG trading partners. The new import requirement was done in consultation with National Institute Standards Industrial Technology (NISIT), National Department of Health (NDoH), PNG Customs and National Agriculture Quarantine Inspection Authority (NAQIA).

Major changes in the current revision include;

- A well-defined structure with three (3) main parts for more clarity on the food safety and trade requirements;
- New part on import requirements;
- New section entirely focusing on fishing vessel operations;
- New product inclusion for pouched tuna, fishmeal, fish oil, including squid and jellyfish;
- Business diversification and standalone facilities such as; ice plants, cold store, export / import storage, landing sites and fish transporters;
- Inclusion of HACCP based programmes and procedures; and
- New section in Annex B covering specific product specification and processing requirements

This current version is now aligned with the Fisheries Act in relation to sanctions and penalty fees and now gives the teeth to bite in terms of breaches in requirements.

PNG National Fisheries Authority continues to strive in ensuring it has existing standards and practices compatible with the world's best standards and practices, therefore in this regard, NFA realises it cannot do it alone but in harmonized corporation with relevant government line agencies and the fisheries operators, including its regional and international partners to achieve its mandated goals and objectives, and acknowledges the continued support and collaboration from all relevant stakeholders.

INTRODUCTION

The growth in production of fish and fishery products for export has made the fisheries sector one of the drivers for economic development in PNG. Growth in production for fish and fishery product for human consumption also trigger food safety which is a global concern. Food safety covers a variety of different aspects in preventing illness and injury, including food trade. Over the past 10 years, PNGNFA's regulatory system has undergone major changes following scrutiny from its major trading partners.

The PNG Standard for Fish and Fishery Product is developed with the objective to minimize the risk of unsafe food being placed on the market and is benchmarked against international best practices and standards. Moreover, where this Standard is silent on any requirement, other relevant National Regulations, Standards or Codex Guidelines and or Codes of Practice shall be adopted accordingly.

This standard place obligations on food business operators to produce fish and fishery product that is safe and wholesome to consume and also place health and hygiene obligations on food handlers.

The PNG Standard for Fish and Fishery Product 2019 (PNGSFFP 2019) sets the minimum requirements required for controlling and regulating the capture, harvesting, landing, handling and processing, storage, transportation and distribution of fish and fishery products. This standard also makes provisions for the importation of fish and fishery products intended for processing and or reprocessing for domestic and export market**.** The PNGSFFP 2019 is empowered by the Fisheries Act.

PNGSFFP 2019 is the 2nd revision of PNGSFFP 2009 that was gazetted in 2009 and given gazettal number PNGS 1710. This is now cancelled and replaced with gazettal number PNGS 1710:2019 for this 2nd revision. PNGSFFP 2019 has been technically reviewed and meets the NISIT requirements for National Standards development and gazettal process.

This standard should be used together with NFA developed food safety and HACCP essential guidelines.

SCOPE

PNGSFFP 2019 with gazettal number PNGS 1710:2019, contains food safety requirements for facilities and vessels that are approved and or licensed to harvest, capture, land, transport, store, handle and process fish and fishery products and applies to all stages of production to ensure safe final product for domestic and export purposes.

This National Standard contains trade requirements for export including the requirements for import of fish and fishery products for domestic consumption, storage and or re-processing for domestic and or for export market.

This standard covers the following requirements:

- Licensing;
- Growing and Harvesting Areas;
- Buildings, Facilities, Location and General Services;
- Hygiene and Good Manufacturing Practices Applied in Fish Processing;
- Additional facilities including Ice Plants, Cold Store, Landing Sites, and Transporters;
- Traceability and Product Re-call;
- Fishing Vessel Operations;
- Microbiological, Chemical and Physical Criteria for Fish and Fishery Products and Water Testing;
- Food Safety Management Systems;
- Organisation of Official Audits and Inspections; and
- Export and Import

It applies to persons, entities and bodies as defined in this National Standard, and to relevant stages of trade processes and activities in ensuring the final fish and fishery product is safe for human consumption, and meets the legal trading obligation.

NORMATIVE REFERENCE

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

1. Codex Alimentarius – CAC/RCP 23-1979, Rev.2 (1993) – Recommended International Code of Hygiene Practice for Low and Acidified Low Acid Canned Foods.
2. Codex Alimentarius – CODEX STAN 191-1995 – Standard for Quick Frozen Raw Squid.
3. Codex Alimentarius – CAC/GL 21-1997 – Principles and Guidelines for the Establishment and Application of Microbiological Criteria relate to Foods.
4. Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption.
5. Appendix II: FAO Draft Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories, www.fao.org/3/w9253e/w9253e0k.htm . CAC, 23rd Session, Rome 23rd June – 03rd July 1999.
6. Commission Directive 2001/22/EC of 8 March 2001 laying down the sampling plans and the methods of analysis for the official controls of the levels of lead, cadmium, mercury and 3-MCPD in food stuffs.
7. Codex Alimentarius, Vol. XIV, "*Food Additives*" First Edition, 2002.
8. Codex Alimentarius – CAC/RCP 1-1969, Rev. 4 (2003) – *Recommended International Code of Practice – General Principles of Food Hygiene.*
9. Codex Alimentarius - CAC/GL 48-2004, Model Certificate for Fish and Fishery Products.
10. 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 product of animal origin intended for human consumption.
11. 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 – Section VIII: Fishery Products.
12. Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs.
13. Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs.
14. Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs.
15. European Commission – Regulation (EC) No. 1441/2007 of 05 December 2007 on microbiological criteria for food stuffs.
16. Fish and Fishery Products Hazards and Control Guide, 4th Edition June 2011.
17. European Commission – Regulation (EC) No. 1019/2013 of 23 October 2013 amending Annex 1 to Regulation (EC) No. 2073/2005 as regards histamine in fishery products.
18. Codex Alimentarius – CAC/RCP 52-2003 (Revised & Amended, 2016) - *Code of Practice for Fish and Fishery Products.*
19. WHO- Guidelines for Drinking Water- 4th Edition, Incorporating first Addedum, 2017.
20. Codex Alimentarius – CODEX STAN 329-2017 – Standard for Fish Oils.
21. Code of Federal Regulation, 21, part 113. USFDA Low Acid Canned Foods Regulation, April 1 2018.
22. Code of Federal Regulation, 21, Part 170 – 179 Additives, April 1 2018.
23. Jellyfish as food – Wikipedia, https://en.wikipedia.org/wiki/Jellyfish_as_food, updated 30 August 2019.

TERMS AND DEFINITIONS AND ACRONYMS

Terms and Definitions

For the purpose of this Standard, the following are approved terms and definitions used.

Terms		Definitions
Audit	-	Systematic and functionally independent examination to determine whether activities and related results comply with planned activities;
Audit finding	-	A statement of fact made during an audit, substantiated by objective evidence;
Auditor	-	A person who is authorised by competent and relevant authority and has the qualifications and the competency to perform food safety audits;
Approved	-	Officially agreed or accepted as satisfactory in writing by the NFA Managing Director and or another official agency having the jurisdiction;
Approval Number		Unique official number assigned to the food establishment where the product was processed or packed and enable food to be traced back to their origin;
Authorised Officer	-	An officer formally appointed by the Managing Director and trained in food safety related areas and risk assessment. Referred to as Food Safety Inspectors empowered under the Fisheries and Aquaculture Management and Development Act 2019;
Botulinum Cook	-	Destruction of *Clostridium botulinum* spores using $12D_{121(oC)}$ / 0.25min >>F_o=3min process
Brine	-	A solution of food grade salt in potable water or clean seawater;
Brine Freezing	-	The process of freezing fish in brine destined for canning purposes where the core temperature shall not be higher than -9°C;
Canning	-	Method of preserving food in which the food contents are processed and packaged in hermetically sealed containers (cans, flexible pouches or jars);
Catch Certificate	-	An official document accompanying a consignment and validated by the competent authority, allowing accurate and verifiable information concerning fish passing through the supply chain;
Certification	-	A process of official guarantee to the processor or exporter that the food safety system has been in compliance with the requirements of this Standard;
Chiller or chill store	-	An insulated refrigerated chamber used for maintaining the temperature of fish and fishery products at or close to 0°C;
Chilling	-	The process of cooling fish and fishery products to a temperature approaching that of melting ice;
Cleaning	-	The removal of soil, food residue, dirt, grease or other objectionable matter;
Clean water	-	Clean seawater and fresh water that does not contain micro-organisms, harmful substances or toxic marine plankton in quantities capable of directly or indirectly affecting the health quality of food;
Cold store	-	An insulated refrigerated chamber within a land-based establishment used for the storage of frozen fish and fishery products (-18°C or colder);
Commercially Sterile	-	Food that is free of micro-organisms which are capable of growth under the conditions it is likely to encounter during storage and transport;
Commercial sterility of thermally processed food	-	The condition achieved by application of heat, sufficient, alone or in combination with other appropriate treatments, to render the food free from microorganisms capable of growing in the food at normal non-refrigerated conditions at which the food is likely to be held during distribution and storage;
Consignment	-	The quantity of fishery products bound for one or more customers in the country of destination and conveyed by one means of transport only;
Container	-	The principal covering in which, fish and fishery products are packed;
Contaminant	-	Any biological or chemical agent, foreign matter, or other substances not intentionally added to fish and fishery products that may compromise food safety or suitability;
Contamination	-	Direct or indirect transmission of objectionable matter or the presence or introduction of a hazard;

Terms		**Definitions**
Control (verb)	-	To take all necessary actions to ensure and maintain compliance with criteria established in the HACCP plan;
Control (noun)	-	The state wherein correct procedures are being followed and criteria are being met;
Control measure	-	Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level;
Control Point	-	Any point, step or procedures at which biological, chemical or physical factors can be controlled;
Corrective Action	-	Any action taken when the results of monitoring at a CCP indicate a loss of control;
Corrective Action Request	-	Formal communication in writing by the processor/ exporter or by the competent and relevant authority through its Authorised Officers for action to be taken to correct non-conformances identified during an audit or inspection;
Customs Area		An area designated for storage of goods that have not yet undergone customs clearance. It is surrounded by customs border;
Cross Contamination	-	Indirect physical, bacterial or chemical contamination of food caused by contact with an infected raw food or non-food sources such as clothes, cutting boards, knives or chemical compounds;
Critical Control Point	-	A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level;
Critical Limit	-	A criterion which separates acceptability from unacceptability;
Deficiency	-	A characteristic or condition that fails to meet a requirement or specification of this Standard;
Deviation	-	Failure to meet a critical limit;
Establishment	-	Any facility unit where fish and fishery products are prepared processed, chilled/frozen, packaged or stored for domestic and export purposes. This also include; • Any building or area in which food is handled and the surroundings of the same management; • Auction/wholesale markets in which only display and sale by whole sale takes place are not deemed to be establishments.
Facility	-	Any premises where fish and fishery products are prepared, processed, chilled, frozen, packaged or stored. For the purposes of this Standard, facility also include vessels;
Factory Vessel	-	Any vessel on board which fishery products undergo one or more of the following operations followed by wrapping or packaging and, if necessary, chilling or freezing, filleting, slicing, skinning, shelling, shucking, mincing or processing;
Fishing Vessel	-	Any boat, ship or other craft which is used for, equipped to be used for or of a type normally used for fishing or related activities;
Fish		Any water dwelling, aquatic or marine animal or plant, live or dead, and includes the egg, spawn, spat and juvenile stages, and any of their parts but does not include any species of dolphins and whales;
Fish and Fishery Products	-	Means all seawater or freshwater animals or parts there of including their roes, excluding aquatic mammals, frogs, aquatic animals covered by other Acts. E.g. jelly fish, sea cucumbers, sea urchins, whether live, fresh, chilled, frozen, dried, cooked, canned or otherwise preserved;
Flow diagram	-	A schematic and systematic representation of the sequence of process steps or operations used in the production or manufacture of a particular food item;
Food handler	-	Any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements;
Food hygiene	-	All conditions and measures necessary to control hazards to ensure the safety and suitability of food at all stages of the food chain;

Terms		Definitions
Food safety	-	Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use;
Foreign matter	-	The presence in the product of any matter, which had not been derived from fish, that does not pose threat to human health and is readily recognised without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices;
Fraud	-	A deliberate act or practice conducted in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding the character, value, quantity, composition, merit or safety of a fish product;
Fraudulent Product		Product that has been intentionally produced packaged or labelled in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety;
Freezer	-	A chamber used solely for the purpose of freezing fish and fishery products. A chamber or equipment designed and of sufficient capacity for freezing fish and other food products, by quickly lowering the temperature so that after thermal stabilization the temperature in the thermal centre of the product is the same as the required storage temperature;
Freezer Vessel	-	Any vessel on board which freezing of fishery products is carried out, where appropriate after preparatory work such as bleeding, heading, gutting and removal of fins and, where necessary, followed by wrapping or packaging;
Freezing	-	A process that is carried out in appropriate equipment in such a way that the range of temperature of maximum crystallization is passed quickly. The quick-freezing process shall not be regarded as complete unless and until the product temperature has reached −18°C (0°F) or lower at the thermal centre after thermal stabilization;
Frozen	-	Condition of the fish and fishery products where the core temperature is -18°C or colder in all its parts;
HACCP System	-	A mandatory food safety assurance system which identifies, evaluates, and controls hazards which are significant for food safety;
HACCP Plan	-	The operational plan set-up of the necessary controls at each process step determined as Critical Control Point for a specific significant hazard, comprising the following HACCP elements (Principals): Critical Limits / Monitoring / Corrective Actions / Records / Verification;
HACCP Team	-	The Team of people who are responsible for developing, implementing and maintaining the HACCP system;
Hazard	-	A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect;
Hazard Analysis	-	The process of collecting and evaluating information on hazards and conditions leading to their presence to decide using a risk evaluation methodology which are significant for food safety and therefore should be addressed in the HACCP Plan;
Health Certificate	-	Paper or electronic documents, which describes and attest to attributes of consignment of food fit for human consumption issued by the officially recognised certifying body of the importing or exporting country. Certificate of Fitness issued by PNG NFA deemed as equivalent;
Hermetically sealed container	-	Container that is designed and intended to be secure against the entry of hazards in particular microorganisms during and after heat processing;
Ice Plants	-	A licensed facility for the production, storing and dissemination of ice for commercial purposes;
Ice Vessel	-	Vessels not out at sea longer than 24 hours;
Imported Fish and Fishery Products	-	Fish and Fishery Products imported into PNG.
Ingredient	-	Any substance (including a food additive) used in the processing of Fish and Fishery Products that ends up in the final product;
Inspection	-	Evaluating for conformity by measuring, observing, sampling, testing or gauging the relevant characteristics to assess compliance with specified standards;
Inspection Lot		Collection of primary containers, or sample units, of the same size, type and style which have been manufactured or processed under essentially the same conditions;

Terms		Definitions
Label	-	Any tags, brand, mark, pictorial or other descriptive matter written, printed stenciled, marked, embossed or impressed on, or attached to a container of food;
Labelling	-	Any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal;
Landing	-	Movement and transfer of fish and fishery product from a fishing vessel or a containerized vessel to an establishment, facility, fish truck, refrigerated container and all other fish storage or transportation medium in a designated port;
Landing sites	-	Sites where fish is first landed onshore and includes wharves;
Likelihood (of a hazard)	-	The probability of an adverse health effect consequential to a hazard;
Loading docks	-	Sites typically adjacent to land-based processing establishments where fish is loaded for export or sale;
Lot	-	A batch, an identifiable quantity of product delivered at one time and determined by the official to have common characteristics, such as origin, variety, type of packing, packer, consignor or markings. The uniformity character may also relate with fish species, size, catch time, preservation conditions and/or to production, processing conditions (e.g. A shipment load, date of production or retorting cycle). The Lot may or not coincide with a consignment. The definition of Lot is extremely important for traceability and sampling purposes;
Low Acid Canned Food	-	Any food, other than alcoholic beverages, that has a finished equilibrium pH value greater than 4.6 of and water activity greater than 0.85;
Lot Size (N)	-	The number of primary containers, or sample units, in the lot;
Managing Director	-	The Managing Director of the competent and relevant authority;
Mass Balance	-	The balance of volume of a given species and product from obtained by subtracting the volume of certified fishery products leaving a supply chain segment from the volume that entered that segment. Applicable yield factors must be accounted for;
Mass Balance Reconciliation	-	Verification of mass balance to ensure that the volumes of certified products at the end of a supply chain segment do not exceed the volumes entering that segment. It is used by Authorized Officer to ensure that total product weight sold does not exceed total product weight purchased;
Melting Ice	-	Process of temperatures approaching that of melting ice is 0°C to <1°C;
Monitor(ing)	-	Conducting a planned sequence of observations or measurements with a view to obtaining an overview of the state of compliance with a standard and or legislation;
Operator		A natural and legal person responsible for ensuring that requirements of this Standard are met within their food business under their control;
Packaging	-	The procedure of protecting fishery product by a wrapper, a container or any other suitable device;
Packing	-	The placement of fish and fishery products into a container and includes sorting and grading;
Pest	-	Includes insect, rodent, birds, pets, or other vermin;
Potable water	-	Water that is safe to drink or to use for food preparation as prescribed by the World Health Organisation;
Premises	-	All elements (interior and exterior) in the building and surrounding property including driveway(s), parking lot(s), drainage, sanitary facilities, waste management and other related structures;
Pre-requisite programmes	-	A programme that is required prior to the application of HACCP system to ensure that a fish processing facility is operating according to this standard and relevant food safety legislation. The programme should consist of GHP and GMP;
Processing	-	An operation affecting the anatomical wholeness such as gutting, heading, slicing, filleting, chopping or any other chemical or physical process (heating, salting, dehydration, marinating);
Processing Authority	-	Qualified person(s) or a group with demonstrated independence from company having expert knowledge of thermal processing requirements for low-acid foods in

Terms		Definitions
		hermetically sealed containers and having adequate facilities for making such determinations;
Processing and Export Facility	-	Any building or vessel or area in which, fish and fishery products are handled, prepared, processed, chilled, frozen, packaged or stored for domestic and export purposes, and or related commercial activity(ies) including the surroundings under the control of the same management;
Raw Materials	-	Fresh and frozen fish, shellfish and or their parts that may be utilized to produce fish and shellfish products intended for human consumption;
Recall	-	Action taken to remove from sale, distribution and consumption of any fish and fishery products found to be contaminated or otherwise reasonably believed to be unsafe for human consumption or believed to be adulterated or from fraudulent practices;
Refrigeration	-	The reduction of the temperature of fish and fishery products through freezing or chilling;
Refrigerated brine	-	Brine cooled by a suitable refrigeration system;
Refrigerated container	-	A refrigerated shipping container for transporting fish and fishery products, having its own standalone (self-powered) cooling system;
Refrigerated seawater	-	Clean seawater cooled by a suitable refrigerated system;
Rejected Product	-	Product rejected because it does not meet the requirements of this Standard and/or importing country requirements;
Retort	-	Pressure vessel designed for thermal processing of food packed in hermetically sealed containers;
Risk (Risk evaluation)	-	a function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard;
Risk analysis	-	A process consisting of three interconnected components: risk assessment, risk management and risk communication;
Risk assessment	-	A component of Risk Analysis, distinct of risk evaluation, which is a scientifically based process consisting of four steps: hazard identification, hazard characterisation, exposure assessment and risk characterisation;
Risk management	-	A component of Risk Analysis, consisting of a process distinct from risk assessment, of weighing policy alternatives in consultation with interested parties, considering risk assessment and other legitimate factors, and, if need be, selecting appropriate prevention and control options;
Risk communication	-	A component of Risk Analysis, consisting of the interactive exchange of information and opinions throughout the risk analysis process as regards hazards and risks, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, feed and food businesses, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions;
Salt	-	Food grade Sodium Chloride;
Sample	-	Any number of sample units which are used for inspection. Generally, the sample comprises all of the containers or sample units drawn for examination or testing purposes from a particular lot;
Sampling	-	The process of drawing or selecting containers or sample units from a lot or production;
Sampling Plan	-	A sampling scheme which includes sample sizes, inspection levels, acceptance and/or rejection numbers so that a decision can be made to accept or reject the lot or production based on the results of inspection and testing of the sample;
Sample unit	-	The individual container (primary container), a portion of the contents of the primary container or a composite mixture of product that is examined or tested as a single unit;
Sample Size (n)	-	The number of containers, or sample units comprising the total sample drawn from a lot or production;
Sanitise	-	Adequate treatment of surfaces by application of chemical or physical agents and process to clean with the intention of eliminating microorganisms;

Terms		Definitions
Segregation		The act or practice of setting apart things from others or from main group;
Severity	-	The seriousness of the adverse health effects of the hazard to the consumer(s);
Shall	-	denotes a mandatory requirement;
Should	-	denotes a recommended or advisory procedure;
Significance of a Hazard /Significant Hazard	-	The process of evaluating if an identified hazard is significant, using a risk evaluation weighing methodology from the outcomes of assessing independently the severity and likelihood of that hazard. This is in particular required to be applied for hazards analysis when undertaking this HACCP development step;
Standard Sanitation Operating Procedures	-	A detailed set of instructions, which describes how to carry out a task, related exclusively with the hygiene and sanitation;
This Standard	-	It refers to PNG Standard for processing and inspecting Fish and Fishery Products for domestic and export purposes;
Toxic fish	-	Fish or fishery products containing any substance not intentionally added and which could cause injury, illness or death of consumers and fish species which are naturally toxic or poisonous;
Traceability	-	The ability to trace and follow a fish and fishery product, feed, food-producing aquatic animal or substance intended to be, or expected to be incorporated into a fish product or feed, through all stages of production, processing and distribution;
Unloading docks	-	Sites typically adjacent to land-based processing establishments where fish is unloaded for entry into storage or processing;
Validation	-	Evidence before the start (or change) of a process demonstrating that the considered control measures (set for PRPs, or CCPs) are effective when correctly applied and will be protective of human health e.g. evidence that the targeted hazard does not grow to an unacceptable level at the proposed critical limit of storage temperature;
Verification	-	Periodic activity to demonstrate that the desired CCP or HACCP Plan outcome has indeed been reached e.g. sampling and testing of the food to evaluate the presence of the targeted hazard below the acceptable threshold by storage at a certain temperature;
Wholesome	-	The positive attributes (quality and safety) associated with a fish and fishery product.

Acronyms

For the purposes of this document, the following acronyms listed below apply.

Acronyms		Definition
ACU	-	Audit Certification Unit
AW	-	Archipelagic Waters
CAC	-	Codex Alimentarius Commission
CA	-	Competent Authority
CAR	-	Corrective Action Request
CEPA	-	Conservation and Environment Protection Authority
CCP	-	Critical Control Point
CFR	-	Code of Federal Regulations (USFDA)
EEZ	-	Exclusive Economic Zone
EU	-	European Union
FAO	-	Food and Agriculture Organisation
FMA		Fisheries Management Act (2000) and amended (2015)
FMR	-	Fisheries Management Regulation (2000) and amended (2015)
FSMS		Food Safety Management System
FV	-	Fishing Vessel
GAP		Good Aquaculture Practice
GHP	-	Good Hygiene Practice
GMP	-	Good Manufacturing Practice

Acronyms		**Definition**
HACCP	-	Hazard Analysis Critical Control Points
HPLC	-	High Performance Liquid Chromatography
HS CODE		International Harmonized Coding System
IMO	-	International Maritime Organisation
IQF	-	Individually Quick Frozen
IRA		Import Risk Assessment
ISO	-	International Organisation for Standardisation.
LACF	-	Low Acid Canned Foods
MSDS	-	Material Safety Data Sheet
MPN	-	Most Probable Number
NAQIA	-	National Agriculture and Quarantine Inspection Authority
NDoH	-	National Department of Health
NISIT	-	National Institute of Standards and Industrial Technology
NFA	-	National Fisheries Authority
UVI		Unique Vessel Identification (Gross Registered Tonnage of vessels less than 100MT)
QC	-	Quality Control
QA	-	Quality Assurance
PNG	-	Papua New Guinea
PNGS	-	Papua New Guinean Standard
PNGSFFP	-	PNG Standard for Fish and Fishery Products
ppm	-	parts per million
ppb	-	parts per billion
RSW	-	Refrigerated Sea Water
TVB-N	-	Total Volatile Basic Nitrogen
SSOP	-	Standard Sanitation Operating Procedures
SOP	-	Standard Operating Procedure
USDA	-	United States Department of Agriculture
USFDA		United States Food and Drug Administration
WHO	-	World Health Organisation

Part 1: Facility and Processing Requirements

PART 1: FACILITY AND PROCESSING REQUIREMENTS

SECTION 1: LICENSING

Application

This section shall be applied to:

a) new operator of a facility intending to prepare fish and fishery products for processing and export;
b) existing licensed facility intending to renew their license; and
c) low technology operators where applicable.

Requirements

1.1. Documentation Requirements for Land based Facility

1.1.1. Plans and Detail of Construction

1.1.1.1. The submitted application shall contain sufficient detail for evaluation of the premise's suitability as a fish-processing, storage and export establishment.

1.1.2. Construction and Alterations

1.1.2.1. The facilities shall be constructed, altered or extended in accordance with plans and construction requirements submitted. These constructions or alterations shall be first approved by the NFA Managing Director.

1.1.3. Premises Plans

1.1.3.1. Plans for establishments shall be in documented format and shall include:

a) a locality map showing the site;
b) a site plan at a scale of at least 1:500 detailing;
    i) the layout of the entire premises including roads and all prominent features of the site
    ii) site elevations
    iii) adjoining and location of neighbors
c) storm-water and waste water drainage and plumbing diagram;
d) elevations at a scale of 1:200 of all buildings used by the facility;
e) a floor plan of all food handling areas and auxiliary areas (cold stores, dry stores etc.) of a scale of at least 1:100 showing all permanent fixtures and layout of equipment;
f) detailed information on major equipment used in processing and export establishment;
g) proposed number of employees by gender and nationality;
h) proposed capacity of production in a day;
i) scope of production;
j) a documented HACCP based procedures that is in line with requirements in section 12.4 of this Standard;
k) environmental waste management plan and CEPA permit;
l) guarantee and commitment statement from the business operator;
m) a plumbing diagram of the facility shall be available to check absence of any cross connection between potable water lines and sewage lines; and
n) confirmation of Compliance to the Building Code of Practice.

1.1.4. Information Required for Renewal of License

1.1.4.1. The following information shall be supplied by the operator as part of the renewal application of a license for the premises or vessel:

a) applicable license application forms;
b) a completed and signed Operator Information Form as prescribed in Annex A;
c) details of any changes to the scope of operation;
d) a current version of the HACCP based procedure; and
e) current audit or inspection report.

1.2. Documentation Requirement for Fishing Vessel

1.2.1. Application for fishing & factory vessels license shall be accompanied by documentation not limited to:

a) above and below deck layout and positions of all major items associated with product handling;
b) elevations with cross sections through processing and refrigeration areas;
c) equipment used in processing;
d) type and equipment used for refrigeration
e) water and or seawater supply including intake and discharge points;
f) a documented HACCP based procedure; and
g) vessel particulars;

i) fish hold capacity
ii) refrigeration capacity
iii) refrigeration compressors / fish hold
iv) ice capacity (if applicable)
v) water capacity
vi) fuel holds and fuel capacity
vii) fuel supply elements
viii) crew amenities
ix) food supplies holding
x) number of crew
xi) other vessel particulars
xii) history of ownership

1.3. Onsite Assessment

1.3.1. The NFA authorized officer shall physically inspect and assess the actual facility prior to making a recommendation for issuance or rejection of a license.

1.4. Approval and Registration

1.4.1. Approval of license shall be based on outcome of assessment and or inspection, and recommendation for approval shall be communicated to the licensing unit for registration.

1.5. Suspension or Cancellation of License

1.5.1. The Managing Director may suspend or cancel license at any time if the facility fails an audit or inspection where objective evidences are there for critical non-compliance with food safety requirements.

1.5.2. Suspension or cancellation shall be in writing served to the licensed operator with specific terms and conditions.

1.5.3. Licensed operator may appeal a suspension or cancellation in writing within 3 working days of the date of the issuance of the suspension notice.

1.5.4. Licensed operator may appeal per condition(s) stated in the suspension or cancelation notice.

1.5.5. The NFA authorized officer maybe called for further investigation for purpose of re-issuance of license.

SECTION 2: GROWING AND HARVEST AREA

Application

This section shall be applied to all areas of spawning, growing including aquaculture and harvest areas of tuna and mud crabs and all fish and fishery products regulated by this Standard.

Requirements

2.1. General Requirements

2.1.1. NFA shall develop a National Monitoring Plan for monitoring of the environmental contaminants of the growing and harvesting areas, and initiate a programme of warning growers and harvesters not to harvest from the affected areas.

2.1.2. Fish shall not be harvested from areas where the presence of potential harmful agents such as pesticides, fungicides, pathogenic bacteria, bio toxins or heavy metals could lead to an unacceptable level of such substances in the food.

2.1.3. Operators and buyers have an obligation to ensure that fish they buy to place on the market, is not harvested from a contaminated or affected area.

2.1.4. Fish of the following species:

a) spanish mackerel;
b) barracuda;
c) coral trout;
d) coral cod;
e) sturgeon fish;
f) grouper;
g) red snapper;
h) red bass;
i) red emperor;
j) moray eels; or
k) other coral species

shall not be harvested from coral reef areas at times when those areas are known to be affected by blooms of dinoflagellates (especially *Gambierdiscus toxicus* - the origin of ciguatoxin).

2.2. Poisonous fish

2.2.1. Poisonous fish of the following families are not to be placed on the market:

a) Canthigasteridae and Tetraodontidae families (for example puffer fish);
b) Diodontidae (for example porcupine fish); and
c) Molidae (for example sunfish) families.

2.2.2. Fish species belonging to the Gempylidae family may be imported/exported in wrapped and packaged form and appropriately labelled to provide consumer information on risks related to the presence of substances with adverse gastrointestinal effects.

2.3. Equipment and Containers Used for Capture and Harvesting

2.3.1. Equipment and containers used for capture and harvesting of fish and fishery products shall be constructed and maintained so as not to constitute a hazard to health and if reused, of a design and construction that permits easy and thorough cleaning. Wood shall not be acceptable.

2.3.2. Containers used for toxic or waste materials shall not be used for holding fish and fishery product, ingredients or any equipment that comes in contact with fish.

2.3.3. Containers used for toxic or waste materials or for holding fish and fishery products, ingredients or any equipment that comes in contact with fish must be clearly marked or identified.

2.4. Protection of Raw Materials

2.4.1. Post-harvest operations shall minimize damage and contamination by physical, chemical and biological hazards to raw materials.

2.4.2. Fish shall be protected from direct sun exposure and exposure to environmental conditions (warm-hot air and wind) shall be minimized.

2.4.3. Fish and fish contact surfaces shall not be directly exposed to fumes, fuels and lubricants or others related to mechanical engines or other possible sources of contamination.

2.4.4. Fish, ice or water used for post-harvest activities, and the respective surfaces which contact with these shall be protected from animals and persons not engaged with the harvesting and handling of fish.

2.4.5. Landing of fish and transportation should occur as quickly as possible to avoid deterioration.

2.4.6. Temperature of fish during transportation shall be monitored and records maintained.

2.5. Food Safety Requirements for Captured and Harvestable Raw Materials

2.5.1. Application of the food safety requirements on captured and harvestable raw materials and any corrective action from the application of the food safety requirements shall be undertaken by all harvesters from the point of catch to the point of landing to ensure all raw materials are maintained in acceptable condition for the intended purposes.

2.6. Removal of Unfit Raw Material

2.6.1. Raw materials which are obviously unfit for human consumption shall be segregated for disposal or treatment during harvesting and production.

2.6.2. Raw materials that cannot be made fit for human consumption by further processing shall be disposed of in a way that avoids contamination of food, water supplies, ingredients and other food contact materials.

2.6.3. Dead fish that may be indicative of disease or other matters of public health concern are to be identified and isolated awaiting a decision on product disposition and further investigations carried out by NFA personnel or relevant public authorities.

SECTION 3: BUILDINGS, FACILITIES, LOCATION AND GENERAL SERVICES

Application

This section shall be applied to:

a) facilities that are involved in the processing of fish and fishery products;
b) non-refrigerated and refrigerated storage area that are integrated into the facility; and
c) low technology operations where applicable.

Requirements

3.1. Building Location

3.1.1. The facility shall:

a) be located on a site where neighboring buildings or operations and land use present no source of potential contamination for the hygienic operation of the facility;
b) be located in an area away from objectionable odors, smoke, dust, other contaminants including flooding; and
c) not be located close to rubbish dumps, sewage treatment plants, sewage pump stations, cemeteries, cement factories and or other chemical factories or other facilities that will pose additional risk of contamination.

3.2. Plant Layout

3.2.1. In addition to the main processing area, fish processing establishment shall possess separate areas for the following purposes as applicable and necessary:

a) storage installations;
    i) storage of residues and wastes
    ii) storage of cleaning materials
    iii) storage of packaging materials
    iv) storage of raw materials
    v) storage of intermediate and final products
b) auxiliary installations;
c) cloakrooms;
d) sanitary facilities;
e) quality control laboratory; and
f) inspectors' office

3.2.2. These areas, and any areas allocated for other activities (e.g. offices, fishmeal plant etc.) must be separate from any area in which fish for human consumption is handled.

3.2.3. Only the stores for cleaning and packaging materials may have direct access to the main processing area.

3.2.4. The main processing area in which fish is handled should have only one entrance for personnel, independent and separate from any entrances and exits used for raw material, finished product and other materials used during the process.

3.3. Buildings and Facilities Construction

3.3.1. Building and Facilities shall be of sound construction and maintained in good repair. All construction materials shall be of a type that will not transmit any undesirable substances and food safety hazards to the fish and fishery products.

3.3.2. The plant shall be of sufficient size to permit the processing of fish without overcrowding of personnel or equipment. Adequate working space shall be provided to allow for satisfactory performance of all operations connected with the preparation of food and avoiding any potential cross-contamination.

3.3.3. The design of buildings and facilities shall permit easy and adequate cleaning and sanitizing to allow the hygienic preparation of food.

3.3.4. Buildings and facilities shall be designed to prevent the entrance and harbourage of insects, pests, animals, vermin and introduction of contaminants.

3.3.5. If any services, chutes, conveyors or the like pass through external walls, the opening where they pass through, if any, must be sealed against the entry of pests and dust.

3.3.6. Buildings and facilities shall be designed to provide separation by partition, location or other effective means between operations including waste disposal which may cause cross contamination of food.

3.3.7. Buildings and facilities shall be designed to facilitate hygienic production, through independent uni-directional flows of ingredients, food, packaging, staff and removal of waste products, in a way that avoids cross-contamination, in the preparation process, from the

arrival of the raw materials at the premises to the final product dispatch. Back tracking in any form between final and raw product shall be avoided.

3.3.8. Areas for processing by-products, offices, engineering workshop, equipment, spare parts store, canteen, vehicle wash areas and garages shall be separate from fish and fishery products processing and handling areas, and specific non direct access to the processing area.

3.3.9. Areas where raw materials are received or stored shall be physically separated from areas in which final product preparation or packing is conducted to prevent contamination of the final products.

3.3.10. Areas and compartments used for storage, manufacture or handling of edible products shall be physically separated from inedible materials to minimize risk of cross contamination of the final product.

3.3.11. Provision shall be made for all liquid and solid waste, storm-water and sewerage to be disposed hygienically avoiding cross-contamination of the fish and fishery products, staff, equipment and surfaces which contact with the products, raw materials, ice and potable water. The disposal shall also be in compliance with the local or national regulation.

3.3.12. Provision shall be made for waste storage areas and inedible materials prior to removal from the factory.

3.3.13. Adequate permanent facilities for the supply of potable water or clean seawater shall be made available.

3.3.14. The electrical supply shall be adequate to maintain normal and efficient operation of all electrically powered equipment and lightings.

3.3.15. Provision shall be made for specific storage of cleaning materials and facilities for washing and drying of containers and equipment.

3.3.16. Provision shall be made for specific storage of ingredients and packaging materials.

3.3.17. Provisions shall be made for drainage facilities and shall include:
a) disposal of wastewater and sewerage effluent; and
b) storm-water and site drainage, and shall be large enough to carry peak loads and constructed to avoid contamination of potable water supplies.

3.3.18. Buildings and facilities shall be designed to provide separation by partition, location or other effective means between operations (including waste disposal) which may cause cross contamination of food.

3.4. Use of Timber

3.4.1. Timber, except as specified in section 3.4.2, section 3.4.3 and section 3.4.4 of this Standard, shall not be permitted for use in:
a) product contact surfaces;
b) processing areas; and
c) ice-rooms, freezers, and chillers.

3.4.2. Timber that is used in doors, door jambs, windows, brooms, brushes and the like in processing areas shall be sealed by a durable non-toxic smooth impermeable material surface coating (e.g. gloss enamel, epoxy or polyurethane paint).

3.4.3. Wooden pallets and dunnage are permitted in dry storage areas only, and not in wet processing operations.

3.4.4. Should wood dunnage be used in cold stores, it should be free from pits and crevices and in good condition. Use of wood in cold stores, will only be acceptable if used non-exposed wood allowing adequately cleaning and disinfecting, and when their use would clearly not be a source of contamination.

3.4.5. Wooden pallets as specified in section 3.4.3 of this Standard and clean timber dunnage is permitted in container system units, transport vehicles and the like, provided that finished goods are in the packaged state.

3.5. Process Design

3.5.1. The process and plant layout shall be designed so that the distribution of equipment and processing activities facilitate rapid and efficient handling and processing.

3.5.2. The process shall be designed in such a way that fish is not exposed to contamination by toxic materials or pathogenic bacteria from the plant environment.

3.5.3. The process shall be designed in such a way that the intrinsic quality of the fish is maintained.

3.5.4. Areas for handling and processing of fish and fishery products shall be designed and constructed to:

a) allow efficient handling of the product;
b) provide separation by partition, location or other effective means so that operations will not cause cross-contamination of food or food handling surfaces;
c) provide separate storage for raw material, final product and waste material;
d) protect raw material and final product from risk of contamination;
e) provide facilities to prevent product deterioration due to exposure and delay; and
f) allow easy accessibility to all areas and equipment for inspection, cleaning and sanitizing.

3.5.5. Facilities shall be designed to prevent cross-contamination.

3.5.6. The main processing area in which fish and fishery products are handled should have only one entrance for processing personnel, independent and separate from any entrances and exits used for raw material, ingredients, fish/product containers, packaging materials and finished products and waste disposal.

3.5.7. Processing areas shall not open directly to:

a) outside environment;
b) toilets and other staff amenities;
c) offices;
d) laboratories; and
e) waste storage.

3.5.8. Personnel entrances into processing areas should be provided with a footbath of sufficient size and location to ensure personnel entering the processing area cannot avoid the footbath and equipped with suitable sanitizer capable of adequately disinfecting footwear.

3.6. Reception and Thawing Area

3.6.1. In any area that involves "wet" operations, floor drains shall be adequate in size, number and location to cope with the maximum flow of water under normal working conditions. There should not be pools of water anywhere within the area.

3.6.2. The area shall be equipped with adequate potable water supply and shall be available in sufficient and appropriate temperature for water thawing operations.

3.6.3. Air thawing area shall be sufficiently covered from direct sunlight exposure.

3.6.4. Adequate storage facilities must be made available for storage of fish bins and baskets used for thawing.

3.6.5. Fish bins and baskets used for fish reception and thawing shall be kept clean and in good hygiene conditions at all times.

3.7. Processing and Storage Area

3.7.1. Floors and Floor Drains

3.7.1.1. Floors in land-based establishments shall be:

a) constructed of hard impact resistant surfaces impermeable to grease and water which permit easy cleaning and disinfection;
b) laid down in such a way to facilitate the drainage of water;
c) floors shall have a minimum gradient of 1:50;
d) concrete floors shall have a high density, impermeable finish that is maintained in good condition;
e) floor joints must be sealed with impervious materials and finished flushed with the floor surface; and
f) the junction between floors and walls should be curved to facilitate cleaning.

NOTE: *Minimum gradient of 1:50 refers to the degree or measurement of slope over a certain distance where it is expressed as is 20mm per 1m.*

3.7.1.2. In any area that involves "wet" operations, floor drains shall meet the requirements of section 3.6.1 of this Standard and shall observe the following objectives:

a) allows the rapid removal of all liquid wastes arising from the processing operations;
b) prevents the return of gases and odours from the drainage system;
c) prevents the entry of rodents; and
d) prevents the passage of solid materials to the external sewage system.

3.7.1.3. In any area that involves "wet" operations, all drains shall:
a) be effectively sealed by a water trap;
b) have adequate access for cleaning;
c) where necessary, be adequately vented to the exterior of the building;
d) flow away from food handling areas; and
e) equipped to prevent backflow.

3.7.1.4. Drains in processing areas must be provided with adequate removable covers to prevent cross contamination.

3.7.1.5. Solid traps installed in conjunction with floor drains shall be designed to enable adequate cleaning.

3.7.1.6. Floor drains shall not be connected to sanitary drainage.

3.7.1.7. Floor drains should not be connected to the storm water drainage system. Where this occurs, they shall be designed and maintained to ensure that flooding of the premises cannot occur due to back-flow.

3.7.2. Walls and Partitions

3.7.2.1. Walls shall be of solid construction and prevent the entry of insects, rodents and birds.

3.7.2.2. Internal walls and partitions shall:
a) be constructed of waterproof, non-absorbent and washable materials;
b) be smooth, lightly coloured and free from gaps;
c) have all joints sealed that might allow the ingress of water, pests or contaminants;
d) be impact resistant or protected from impact; and
e) be easy to clean and disinfect.

3.7.2.3. In areas where "wet" operations are carried out, angles between walls and floors shall be sealed and covered to facilitate cleaning.

3.7.2.4. Where walls do not touch the ceiling, their tops shall be capped or sloped at approximately 45 degrees or subject to regular cleaning and disinfection.

3.7.2.5. Where internal walls are painted or surface coated, the surface shall be:
a) non-toxic;
b) able to withstand hosing with hot water and detergents; and
c) able to withstand reasonable impact.

3.7.2.6. If any room, including where a cold store is built within a food handling area, inaccessible cavities formed between the walls or ceilings of the inner and outer rooms shall be made pest and dust proof.

3.7.2.7. Any piping should be located behind the wall or at least 4 cm away from the wall to facilitate easy cleaning and disinfection.

3.7.3. Windows

3.7.3.1. Open windows are not permitted in areas where food is exposed, processed or packed.

3.7.3.2. Open windows and vents shall be fitted with insect/bird/rodent-proof screens kept in good repair conditions that are easily removable for cleaning.

3.7.3.3. Window sills should be as small as possible and inclined in order to prevent the accumulation of dust, and their use for the storage of articles.

3.7.3.4. Timber that is used in windows in processing areas shall comply with requirements in section 3.4.1 of this Standard.

3.7.3.5. Window frames should be made of a smooth impermeable material.

3.7.4. Ceiling

3.7.4.1. Ceilings shall be designed, constructed, sealed and finished so as to:
a) provide an adequate height in all rooms where fish and fishery products are handled;

b) be lightly coloured, smooth and impervious to moisture; and not have open joints or cracks;
c) prevent dirt accumulating and be capable of being effectively cleaned;
d) have all overhead machinery, pipes, wires and other accessories insulated and or minimised; and
e) minimise condensation, mould development and flaking.

3.7.5. Doors

3.7.5.1. Doors and hatches shall:
a) have smooth and non-absorbent surfaces;
b) be tight fitting with no openings and gaps;
c) be impact resistant or protected from impact damage; and
d) be of a construction as stated in section 3.7.2.5 of this Standard.

3.7.5.2. Doors, hatches and other openings to the outside of the building or where physical separation is required shall be constructed to render pest proofing.

NOTE: *This requirement may be met by effectively employing one or more of these methods:*
a) self-closing device, strip curtain or an air curtain; or
b) a pest proof ante-room, an annex, and/ or an area.

3.7.5.3. If airlocks are installed they shall be designed to minimise movement of air into or between areas where food is exposed, processed or packed.

NOTE: *A low-pressure airlock vented to the exterior with doors that cannot be opened simultaneously will meet this requirement.*

3.7.5.4. Timber that is used in doors, door jambs, windows, brooms, brushes and the like in processing areas shall meet requirements in section 3.4.1 of this Standard.

3.7.5.5. The doors by which raw and finished material enters and leaves should be of adequate size and well-constructed.

3.7.6. Ventilation

3.7.6.1. Adequate ventilation shall be provided to prevent excessive build-up of heat, steam, condensation and other contaminants.

3.7.6.2. All extraction fans and air conditioners shall be protected with filters and meshes to prevent the entry of dust, insects and birds.

3.7.6.3. Where under-floor ventilation pipes are provided they shall be pest proofed.

3.7.6.4. Where smoking, cooking, canning or boiling operations are carried out, exhaust fans or similar ventilation means shall be installed and have capture velocities capable of conveying all heat, fumes and other aerosols through the exhaust canopy openings.

3.7.6.5. Airflow shall always be directed from clean areas to dirty areas.

3.7.7. Lightings

3.7.7.1. All parts of the plant shall be adequately illuminated in order to allow working with good visibility of the handlers and processors. Natural or fluorescent lighting is acceptable.

3.7.7.2. Adequate lighting shall be provided throughout the factory and light produced shall not distort colours and be shadow free at the inspection surface.

3.7.7.3. The intensity of illumination shall be suitable for the task in hand and as a minimum meet the following requirements:
a) 220-lux in the processing areas;
b) 540-lux where the product is being inspected; and
c) 110-lux in other areas.

3.7.7.4. Additional illumination should be installed in areas in which detailed work is undertaken, for example over the work tables.

3.7.7.5. Light fittings shall be:
a) equipped with a diffuser or other means so that breakage will not contaminate the product;
b) protected with a plastic cover to prevent broken glass falling into the processing area for fluorescent tubes and incandescent light bulbs;
c) recessed into or flush fitted against the ceiling so that no exposed ledge is created, or if light fittings cannot be installed in accordance with section 3.7.7.5

(a)(b) of this Standard however, they may be suspended from the ceiling by cable or like; and

d) light installations shall be readily accessible for cleaning purposes.

3.8. Hand Washing Facilities

3.8.1. Hand washing facilities shall be:

a) sufficient in numbers and provided in accessible locations at entry to main processing areas and throughout the processing areas for all staff to wash their hands on entering the processing area or whenever required;
b) located adjacent to personnel access areas;
c) provided suitably pressured potable water supply over a sink;
d) provided with taps that are non-hand operable (foot, knee or electronically operated);
e) provided with liquid soap contained in a dispenser;
f) provided with single use towels with sufficient receptacles for disposal of the used ones, non-hand operable, or other hygienic means of hand drying;
g) fitted with properly trapped waste pipes leading to drains; and
h) exclusively used for hand washing purposes.

NOTE: *Fish products shall not be washed in hand washing basins*.

3.8.2. Sign boards advising persons to wash their hands prior to entry to the food handling areas shall be provided in a prominent position at the entrance.

3.8.3. The signs shall be written in local and English languages and be easily read and understood.

3.9. Chillers, Freezers, Ice rooms and Cold Store Facilities

3.9.1. Structure

3.9.1.1. Design of the freezer shall be appropriate to the presentation of the fish and its packaging.

3.9.1.2. The structure of the chiller, freezer and ice room shall:

a) have floors, walls, ceilings and doors that are constructed, installed and maintained according to the requirements of food handling areas in section 3.7 of this standard;
b) have other internal structures constructed of smooth, impervious and corrosion resistant material;
c) be designed to allow for adequate drainage of defrosted water away from the refrigeration unit; and
d) have door seals that are adequate to seal off warm air from outside the refrigerated chamber.

3.9.1.3. Refrigeration equipment shall be installed in such a way that its operation and cleaning shall not contaminate food products and or packaging in any way and shall allow sufficient space for cleaning around and between the equipment.

3.9.1.4. Plastic strip curtains or similar shall be installed to assist in air retention when cold room doors are opened.

3.9.1.5. Refrigeration chambers shall be constructed and maintained in a manner that prevents ice build-up and is easy to clean.

3.9.1.6. Ice Rooms and Storage areas shall:

a) be capable of maintaining the quality and temperature of the ice it contains;
b) have door seals that are adequate to seal off warm air from outside the refrigerated chamber;
c) be dust and pest proof;
d) be designed and maintained to prevent undesirable physical and chemical contamination; and
e) allow storage in a hygienic clean environment and protect ice from cross-contamination in particular while collecting by ice-worker handlers.

3.9.2. Freezing capacity

3.9.2.1. Freezers shall be capable of rapidly reducing temperature of fish and fishery product as required.

3.9.2.2. Freezing equipment shall be sufficient to achieve rapid reduction in temperature so that the specific temperature of the product laid down in this Standard is obtained in the shortest possible time.

3.9.2.3. Design and operation shall regard the relative capacity of the compressors and the maximum permissible load of any blast, plate or tunnel freezer.

3.9.2.4. Fish and or fishery products shall be frozen in a chamber specifically designed for this purpose and as rapidly as possible be frozen to a core temperature of –18°C or colder in all parts of the product and should be within at least 4–8 hours of starting the freezer depending on fish or product size).

3.9.2.5. Fish and fishery product shall never be frozen in the cold store.

3.9.2.6. Freezer shall not be overloaded with quantities of fish or product in excess of the design capacity in reference to the specifications of the supplier of the refrigeration equipment.

3.9.2.7. Blast freezers shall not be loaded in excess of 70% of internal volume to allow good cold air circulation.

3.9.3. Cold Storage Capacity

3.9.3.1. Cold Storage facility shall have capacity to maintain requirements in section 3.9.2.4 of this Standard.

3.9.4. Storage Monitoring Devices

3.9.4.1. Every refrigeration chamber shall:

a) be equipped with an accessible and easily readable thermometer capable of reading accurately within 0.5°C or equivalent in Fahrenheit;
b) shall have its temperature taken and recorded at least once every 4 hours if there is no continuous temperature recording device; and
c) is fitted with a temperature recording and monitoring device.

3.9.4.2. Where appropriate, the sensor for the temperature recording device shall be situated in the warmest part of the cold store.

3.9.5. Storage of Raw Material (Fresh and Frozen)

3.9.5.1. The plant shall possess adequate facilities for the storage of fresh fish at 0ºC, with sufficient capacity to store all the raw material arriving at the plant and which is not processed immediately.

3.9.5.2. For the storage of raw material, chill store at 0ºC or frozen cold store constructed to the standards as specified in section 3.9.1 and temperature requirements as specified in section 3.9.2.4 of this Standard.

3.9.5.3. The plant shall have adequate facilities for the storage of all the frozen raw material arriving at the plant and which is not processed immediately.

3.9.5.4. All long-term cold storage requirements shall be recessed into the processing plant.

3.9.5.5. No refrigerated containers shall be recessed into the factories. Refrigerated containers shall only be used as temporary holds to fill up and transport fish and fishery products and as such holding as long-term storage is not permitted.

3.9.5.6. Adequate and proper cold store shall be constructed within the fish factory or as standalone to hold frozen product and maintained at temperature of -18 °C or colder.

3.9.5.7. The cold storage shall be adequate in size for the intended production, and constructed to protect the frozen fish from fluctuation in temperature, dehydration and physical damage.

3.9.5.8. The capacity shall be sufficient to store at least 7 days of maximum production.

3.9.5.9. The Refrigeration system shall be capable of maintaining the product internal temperature below –18°C during extreme operating conditions (during loading and with high external temperatures).

3.9.5.10. Small to medium sized operators can use refrigerated containers as a cold store where the fish and fishery products are not intended for European Union market.

3.10. Conditions for Working Equipment and Fixtures

3.10.1. Working Equipment

3.10.1.1. All equipment and utensils shall be designed, constructed, installed, operated and maintained so as to:

a) prevent contamination of the product with toxic materials;
b) avoid the accumulation of dirt which could contaminate the product; and
c) permit easy and thorough cleaning with hot water, detergent and disinfection
d) where necessary be accessible for inspection.

NOTE: *Racks and shelves may accommodate this requirement with adequate clearance to facilitate cleaning and disinfection.*

3.10.1.2. All equipment, articles and utensils including tubs and bins that are food contact surfaces shall:

a) be smooth, non-absorbent and resistant to corrosion. The use of stainless steel and high-density plastics is recommended;
b) be free from pits, crevices and in good repair;
c) be made of materials which do not transmit odour, taste and are non-toxic;
d) not affect the food products; and
e) be capable of withstanding repeated cleaning and disinfection.

3.10.1.3. A suitable system for the internal movement of fish within the plant shall be installed. Regard should be given to the need to maintain a regular flow of product. Such a product handling system will utilize:

a) conveyors;
b) and/or trollies where necessary; or
c) fish boxes.

3.10.1.4. Conveyors used for the movement of the product within the plant shall:

a) be constructed of impermeable materials which are easy to clean; and
b) have conveyor belts that are easy to remove, to facilitate cleaning.

3.10.1.5. All working equipment must be constructed of non-corrodible impermeable materials (eg. stainless steel or high-density plastic).

3.10.1.6. Fish boxes which are used for the movement of fish within the plant, shall be constructed of a high-density plastic and be of a light colour.

3.10.1.7. The boxes shall have a smooth finish and their design shall avoid areas which could retain particles of product, grease, dirt and other contaminants.

3.10.1.8. The boxes shall be designed to permit drainage of any liquid.

3.10.1.9. Sufficient fish boxes and trays for the different purposes (intermediate products) shall be provided for the needs of the process. They must only be used within the plant, not for external transport of fish.

3.10.1.10. If necessary, reception and washing tanks shall be used in order to wash and chill the fish upon arrival at the plant and during processing.

3.10.1.11. The use of wood in such articles mentioned in section 3.10.1.2 of this Standard is prohibited. This applies to knife handles, ice shovels, filleting and cutting boards. For such purposes the use of high-density plastics is recommended.

3.10.1.12. All the machinery shall be easy to clean, and its design shall permit it to be dismantled for cleaning purposes.

3.10.2. Fixtures

3.10.2.1. Supporting framework for machinery, benches, sinks, work tables, foot-stands, etc. shall be constructed of smooth, impervious materials free from dead ends, ledges or crevices in which pests or potential contaminants may accumulate.

3.10.2.2. The supports or bearers that are used to carry large fish shall be made of non-corrodible material.

3.10.2.3. Where foot stands are used to raise personal to the level of the work tables they should be constructed of stainless steel or other non-corrodible material.

3.10.2.4. Equipment or fittings adjacent to walls or other equipment having any openings shall be sealed to prevent entry of water and dirt or have sufficient space to permit cleaning.

3.10.2.5. Equipment fixed onto the floor shall be installed:

a) by sealing directly to the floor to prevent the entry of water;

b) on a raised plinth coved at the junction of the floor and plinth; or
c) on legs with a minimum of 300 mm clearance between the underside of the equipment and the floor.

3.10.2.6. Chutes and other enclosed systems for transfer shall be constructed with easily cleanable hatches and allow for inspection.

3.10.2.7. All overhead structures, services and fittings including lighting shall be easy to clean and:
a) installed so as to avoid contamination to food;
b) installed so as not to hamper cleaning operations;
c) insulated where appropriate and be designed and finished as to prevent the accumulation of dirt, minimise condensation, mould development and flaking; and
d) easily be accessible for cleaning and maintenance

NOTE 1: *Requirement in section 3.10.2.7 of this Standard may be met by locating all pipes and machinery above the ceiling.*

NOTE 2: *For ducts, conduits and pipes to meet the requirement in section 3.10.2.7 of this Standard, they may be recessed into the wall or mounted at least 25 mm clear. Long runs of exposed horizontal pipes should be avoided.*

3.10.2.8. Hose points shall be provided together with hose racks made of corrosion resistant material that is easy to clean where appropriate.

3.10.2.9. All hoses inside and outside the plant shall have anti-siphoning devices installed.

3.10.2.10. Stairs, catwalks, platforms, stands, ladders and the like in processing areas shall be:
a) of a construction and material that is impervious, non-slip, non-corroding, easy to clean and impact resistant; and
b) situated and constructed so as not to cause contamination of food processing areas, equipment and product by allowing potential contaminants falling onto them.

3.11. Waste Storage Facilities

3.11.1. Adequate provision of waste storage and disposal facilities shall be made. It should integrate a temporary storage with connection to food handling and processing areas and a waste storage area independent to the processing facility to which the waste will be taken from the temporary storage area.

3.11.2. Refuse stores shall be designed and managed in such a way as to enable them to be kept clean and free of animals and pests.

3.11.3. The area in which residues and wastes are stored shall have a permanent water supply and adequate drainage.

3.11.4. Containers and boxes which are used to carry residues and waste shall not be used for fish or ice at any time. Separate boxes shall be used. It is recommended that the three (3) sets of boxes (waste, fish, and ice) be of different colours or otherwise be clearly identified for its specific use.

3.11.5. The containers and boxes shall be:
a) clearly identified with tightfitting lids where necessary to prevent contamination or pests;
b) leak proof and impervious;
c) easy to clean and to disinfect or disposable;
d) able to be closed securely if stored externally;
e) stored in a designated area which minimises contamination; and
f) Kept in sound condition.

3.12. Water Supply Facilities

3.12.1. Water supply facilities shall ensure adequate permanent potable water or clean seawater supply is made available. It may be necessary to install water treatment facilities to ensure adequate disinfection of water. This may include but it not limited to in-plant chlorination or UV system to ensure the potability of water throughout and at all times.

3.12.2. The non-potable water lines shall be identified separately (preferably by colour) with no cross-connections or back-flow into potable water lines.

3.12.3. A water plant distribution system plan shall be made available and be part of the water quality programme and shall include:
a) identification of pipes and taps;

b) identification of cisterns and respective supply system to the different parts of the plant; and
c) a plumbing diagram shall be made available for inspection to ensure clear separation from water line and sewage lines.

3.12.4. The water system in the processing and export establishment should be installed in accordance to local regulations.

3.12.5. The provision of water to the sanitary facilities (eg: urinals) shall be isolated from the water system for the rest of the plant, and should be supplied from a separate cistern.

3.12.6. The plant shall possess adequate water storage cisterns with sufficient capacity to supply the requirements of the plant when operating at maximum capacity.

3.12.7. The cisterns shall be well constructed and the internal surfaces shall be smooth, rust free and impermeable. A high-quality cement finish is acceptable.

3.12.8. Each water cistern shall be provided with an impermeable hatch which permits entry for cleaning and inspection purposes. The design of the hatch shall protect against the entry of rainwater and any water which may flow out of the plant.

3.12.9. Each water cistern shall be protected against the entry of insects, animals and dust by adequate screening of any ventilation pipes.

3.12.10. The area surrounding each water cistern shall be maintained clean and free of accumulations of rubbish, dust, water and other materials which could contaminate the water inside.

3.12.11. Water cisterns shall be inspected at regular intervals with the objective of keeping them clean and in good condition.

3.12.12. All storage tanks and pipes used in handling water shall be constructed to facilitate cleaning and inspection.

3.12.13. All storage tanks shall be effectively covered to prevent the entry of pests and other contaminants.

3.12.14. Water re-circulation and circulation systems shall be clearly identified and have:
a) no cross connection between potable and non-potable water;
b) non - return devices installed to prevent back flow into the systems;
c) no dead ends; and
d) non-potable water outlets clearly identified.

3.13. Steam Facilities

3.13.1. Where steam or other heating medium is used, the equipment shall have the capacity to supply steam in sufficient volume and pressure and required temperature for the operation.

3.14. Dry or Non-Refrigerated Storage Area

3.14.1. Dry or Non-refrigerated food stores shall be:
a) of sound construction in accordance with requirements in section 3.7 of this Standard;
b) designed and maintained so as to prevent undesirable physical, microbial and chemical changes to processed fishery product and its packaging which could affect the wholesomeness of the processed fish;
c) pest proof; and
d) well-lit and ventilated.

3.14.2. Utensils, Cartons, Wrapping Materials, Ingredients and Food Container Stores shall:
a) be dust proof;
b) be pest proof;
c) be designed and maintained to prevent undesirable physical and chemical contamination;
d) have shelves or racks constructed in accordance with section 3.10.2 of this standard;
e) have cartons and any packaging material stored away from the floor, walls and ceiling with space around for inspection for moulds, physical contaminants etc.; and
f) well-lit and ventilated.

3.15. Waste Water Facilities

3.15.1. Processing establishments shall have an efficient effluent and waste disposal system which shall be maintained in good repair.

3.15.2. All effluent lines (sewerage, storm water, processing) shall be large enough to carry peak loads and constructed so as to avoid contamination of the potable water supply.

3.15.3. Sanitary drainage shall not be connected with any other drains within the establishment and be directed to a septic tank or sewerage system.

3.15.4. Septic tanks and waste trap systems shall be located away from any processing area or entrance to the building so as to avoid cross contamination to the product.

3.15.5. The storm-water drainage system shall not be connected to the effluent treatment system.

3.16. Facilities for Cleaning, Washing and Drying of Food Trays, Trolleys, Bins etc...

3.16.1. Adequate facilities designated for cleaning and sanitizing of utensils and working equipment shall be provided, where required within the establishment.

3.16.2. These facilities must be clearly marked.

3.16.3. The location and activities held within these facilities shall not be a source of contamination to the fish and products. The location shall be available for the different main process areas so that the flow of the dirty utensils from one area do not represent a cross-contamination to the other processing areas.

3.16.4. A drying area shall be provided separately or protected from cross-contamination of the cleaning, sanitation practice.

3.16.5. These facilities shall be constructed of corrosion resistant, non-absorbent materials capable of being cleaned effectively.

3.16.6. These facilities shall be equipped with adequate potable water supply, water pressure and drainage.

3.16.7. Where disinfection facilities are required, adequate provision for installation of suitable equipment shall be provided.

3.16.8. Disinfection facilities shall be:

a) constructed of corrosion resistant materials;
b) capable of being easily cleaned; and
c) fitted with a suitable means of supplying hot and or cold water in sufficient quantities.

3.17. Toilets, Changing Facilities and Living Areas

3.17.1. Toilets, Changing Rooms and Living Areas shall not be used for the storage of any food ingredients, packages or food.

3.17.2. Suitable and conveniently located changing facilities including toilets and hand washing facilities shall be provided. There shall be no direct access between changing and sanitary facilities and any room in which fish, or materials or equipment which come into contact with fish, is handled.

3.17.3. Living areas shall be completely separated from food handling areas and not open directly onto these areas.

3.17.4. Adequate facilities shall be provided for personal effects belonging to staff to avoid any source of contamination. Such facilities shall be installed and maintained according to the requirements in section 3.3 of this Standard where applicable.

3.17.5. Toilet and toilet areas should be adjacent but separate from change rooms and at the same time shall be integrated into the processing facility but completely separated from food handling areas and not open directly onto these areas. In general, the facility must be:

a) designed to ensure hygienic removal of waste matter;
b) well lit, ventilated and maintained in a clean state at all times; and
c) adequate in number for all gender

3.17.6. Entrances to toilets from processing areas shall be through either an intervening change room or an airlock that is vented to external air.

3.17.7. Hand wash facilities shall be provided near toilets and shall follow the requirements in 3.8 of this Standard.

3.17.8. Sign boards shall be prominently posted in hand washing areas directing persons to wash their hands after use.

3.17.9. The signs shall be written in local and or English languages so it is easily read and understood.

3.18. Laundry Facilities

3.18.1. Laundry facility shall:

a) be provided for washing, drying and hygienic storage of washable garments in the establishment but where this facility is not available, outside contractors should be engaged; and
b) have the capacity in regard to the number of food handlers.

3.19. External Environment

3.19.1. Areas immediately surrounding buildings, roads, pathways and other areas serving the premises shall be suitably paved, graded, grassed (although not close to the walls of the facility), or landscaped to avoid the risk of dust, pests or other contaminants from entering food receiving, handling, processing, packaging and storage areas.

3.19.2. There shall be adequate drainage of the surrounds including roads, access ways and pathways and provision shall be made to allow for their cleaning. Where vehicles are cleaned on the premises a paved area with drain shall be provided.

3.19.3. Road access ways and storage areas for container system units shall be suitably paved, graded, grassed, or landscaped to avoid the risk of dust, pests or other contaminants.

3.20. Loading Docks, Container Depots, Vehicle Wash Areas and Landing Site Condition

3.20.1. Loading Docks Areas

3.20.1.1. The loading dock shall be:

a) located in an area that is convenient to the product store; and
b) protect fish and fishery products from contamination during loading.

3.20.1.2. Where the material to be assembled prior to loading the marshalling area shall be protected from pests, birds and other contaminants.

3.20.1.3. Both the loading dock and associated marshalling areas shall have an illumination of sufficient intensity for loading and as a guide an illumination at least 220-lux.

3.20.2. Unloading Docks Areas

3.20.2.1. The unloading dock shall be:

a) located in an area that is convenient to the raw material receipt and storage area; and
b) protect fish and fishery products from contamination during loading.

3.20.2.2. The unloading area shall be protected from pests, birds and other contaminants.

3.20.2.3. Unloading dock and nearby areas shall have an illumination of sufficient intensity for unloading and as a guide an at least 220-lux.

3.20.2.4. The area nominated for truck movement shall be finished with a well-drained surface that is impervious and durable with adequate supply of water for cleaning purposes.

3.20.2.5. Unloading and landing equipment shall be constructed of a material that is easy to clean and disinfect.

3.20.3. Vehicle and Container Wash Areas

3.20.3.1. There shall be a designated area for washing of vehicles and container system units used to carry fish and fishery products.

3.20.3.2. The surface of the areas used to wash vehicles and containers shall:

a) be paved and drained;
b) be durable and impervious;
c) have a drainage gradient that slopes towards the drainage system; and
d) have an adequate supply of pressurized water for cleaning and disinfecting operations.

3.20.4. Container Depots and Terminals

3.20.4.1. Road access ways and storage areas for container system units shall be kept clean at all times and be suitably paved, graded, grassed, or landscaped to avoid the risk of dust, pests or other contaminants.

3.20.5. Landing site conditions and facilities

3.20.5.1. In general, the landing site shall:

a) minimise exposure to sunlight and cross-contamination during fish handling;
b) provide adequate storage facilities for fish and ice if applicable;
c) have an impermeable surface;
d) have adequate sanitary and hand washing facilities for staff if necessary;
e) prevent animals onsite and where possible, the area should be fenced;
f) provide necessary structures so that only authorised personnel should be allowed access to the area where fish is being handled or displayed;
g) have proper facilities for washing fish;
h) have adequate potable water supply or clean seawater under sufficient pressure and volume; and
i) have nearby areas shall with illumination of sufficient intensity for night landing.

3.21. Specific Requirements – Canning Area

3.21.1. Calibration of retorting equipment shall comply with requirements in section 4.12 of this Standard.

3.21.2. Designated area shall be provided for the display of process parameters for verification.

3.21.3. In all fish canning plants there shall exist sufficient retort capacity for the heat processing of the total production of canned fish, without undue delay.

3.21.4. The retorts shall be designed and constructed to process the cans at temperatures and pressures necessary to achieve an adequate commercial sterilization (botulinum cook) of the contents, in accordance with their nature and the size of can used.

3.21.5. Each retort shall have at least one pressure gauge, one mercury in glass thermometer and one recording thermometer, which records in a permanent form the interior temperature of the retort.

3.21.6. All taps, safety valves and seals associated with the retorts shall be maintained in good working condition.

3.22. Specific Requirements - Cooking Area or Plants

3.22.1. In all fish pasteurization plants or where there is a precooking step there shall exist sufficient cooking capacity for the heat processing of the total production of cooked fish, without undue delay.

3.22.2. The cookers shall be designed and constructed to process the products at temperatures and pressures necessary to achieve an adequate pasteurization or cooking of the contents, in accordance with their nature and the size.

3.22.3. Display and recording instrument and or device shall be available for monitoring the cooking parameters: temperature, pressure and time.

3.22.4. All taps, safety valves and seals associated with the cookers shall be maintained in good working order.

3.22.5. The cookers shall be subject to adequate calibration and maintenance, integrating thermal distribution testing.

3.23. Specific Requirements – Ice Production Area

3.23.1. Ice-making facility shall be installed in each plant undertaking processing or packing of fresh/frozen fish.

3.23.2. Where appropriate ice production facility shall meet structure requirement in section 3.7 of this Standard.

3.23.3. Ice making facility shall produce ice quantities adequate to the needs of the process, including: transport of raw material from the port; storage of raw material before processing; chilling of fish during processing.

3.23.4. Water used for ice production shall be potable and meet requirements in section 11.2.1 and section 11.3.2 of this Standard.

3.23.5. Water supply and storage facilities shall comply with requirements specified in section 3.12 of this Standard.

3.23.6. Recommended the use of ice flakes. If large blocks are produced they shall be crushed by machine. Manual crushing of block ice shall be prohibited.

3.23.7. Insulated ice store shall be provided with capacity for the above needs during 4 days of maximum production.

3.23.8. Containers used for ice storage and transport shall:
a) be insulated, designed and equipped to maintain ice quality;
b) have internal surfaces constructed from smooth and impervious materials;
c) not be a source of contamination;
d) be pest and dust proof;
e) be capable of being drained and cleaned; and
f) be exclusively for ice use. Not allowed to be used for other purposes in particular for waste, fish and other foods.

3.23.9. Each ice plant shall be subject to approval by NFA.

3.24. Specific Requirements – Fish Smoking / Drying Areas or Plants

3.24.1. Smoking shall be carried out in a separate facility or designated place, if necessary, equipped with adequate ventilation to remove smoke and heat from affecting other parts of the premises where products are processed and stored.

3.24.2. Drying or smoking areas shall be specially designed for the purpose and reasonably free from objectionable odours, or other contamination and kept in good condition and protected against the entrance of birds and animals. The drying facility should be prepared with protective structures.

3.24.3. Drying shall be done above the ground (eg. on racks).

3.24.4. The ground shall be kept in good condition.

3.24.5. The process (drying and smoking) shall allow the best possible drying rate at the surface as well in the core of the product.

3.24.6. The smoking equipment shall allow the control and monitoring of process variables, at least of the temperature.

3.24.7. The smoking equipment shall not be a source of contamination and of high temperature to the other areas where the fish is handled, processed and stored.

3.24.8. Wood used for smoking shall be stored in separate premises and should be free of chemicals which may contaminate the product (e.g. paint, varnish and any other coatings).

3.24.9. The product shall be free from foreign matter.

3.24.10. Intermediate product, final products and packaged fish shall be held in a dry area where it is protected from dust, rodents and contaminants.

3.24.11. The storage area shall be well ventilated and cool to avoid mold development and to protect the quality of the product if the product is to be stored prior to shipment.

3.25. Specific Requirements – Salting or Brining Area

3.25.1. Salting

3.25.1.1. Salting operations shall take place in a different premise and be sufficiently removed from other parts of the premises where other operations are carried out.

3.25.1.2. Salt and other ingredients used shall be stored so as to preclude contamination and once used shall not be re-used.

3.25.1.3. Containers used for salting or brining shall be cleaned before use and constructed so as to preclude contamination during the process.

3.25.2. Brining

3.25.2.1. Areas or parts of the facility used solely for brine freezing shall be separate from other areas used for processing of fish and fishery products.

3.25.2.2. The areas or parts of the facility used solely for brine freezing shall:
a) be suitably clean with adequate and effective drainage system;
b) be maintained in such a manner that no microbiological, physical, chemical or other objectionable substances can contaminate the fish and fishery products or make the fish and fishery products unfit for human consumption;
c) have the area protected from dust and pests; and
d) contain hand washing and toilet facilities that are readily available to processing staff as set out in section 3.17.1 and section 3.17.2 of this Standard;

e) have a clean dry area for the storage of packing materials and other input materials.

3.26. Specific Requirements – Internal Testing Laboratory Facilities

3.26.1. The quality control laboratory shall not become a source of contamination, in particular in case of microbiological analysis.

3.26.2. Internal test laboratories for pathogenic micro-organisms and chemical contaminants testing shall be separated from food handling areas. If internal testing is carried out for specific pathogenic bacteria then it should be done in an independent facility as far as possible from the processing facility.

3.26.3. Internal test laboratory shall have:

a) designated waste storage areas and effective removal system for hazardous waste;
b) have controlled and differentiated outgoing /incoming accesses;
c) appropriate decontamination equipment; and
d) have in place good laboratory practices to avoid or minimize the potential for contamination.

3.27. Specific Requirements - By-Product Processing Facility

3.27.1. Any area used for the storage and processing of waste and by-products shall be completely separate from that used for the processing of fish for human consumption. There should exist no direct access between the two areas.

3.27.2. Any water or liquid wastes from by-product processing and associated storage facilities shall be prevented from entering an area in which fish for human consumption, or material which comes into contact with fish, is handled.

SECTION 4: HYGIENE AND GOOD MANUFACTURING PRACTICES APPLIED IN FISH PROCESSING

Application

This section outlines general requirements for Hygiene and Good Manufacturing Practices that shall be applied by facilities that are involved in processing of fish and fishery products. Where applicable and subject to risk-based assessment, the section can also be applied to Low Technology operations. However, specific GMP requirements relating to Process Control for the specific fish and fishery product are outlined in Annex B of this Standard.

Application of personal hygiene in this section applies to person(s) who directly or indirectly;

a) work in the unloading or reception of raw material;
b) handle fish or materials which come into contact with fish; and
c) work in fish preparation and processing activities.

General Principles

The general principles of hygiene this section will be addressing are as follows:

a) fish shall be processed rapidly and without delay;
b) all necessary and reasonable actions and precautions shall be taken in order to minimise the contamination of the fish;
c) fish shall never be placed on the floor without the protection of appropriate fish boxes. Fish products processed or already under processing which falls on the floor shall be immediately removed for waste;
d) fish from different fishing vessels or harvests should not be mixed together. Keeping them separate will prevent contamination between batches, and enable easier identification in case of subsequent rejection;
e) during stoppages (breaks) the processing of fish which has already started shall be finished. The stoppage (breaks) shall be utilized for a general cleaning and disinfection of the plant;
f) deteriorated and damaged product and extraneous or waste material shall be removed from the processing or other areas immediately, in order to avoid contamination of the product; and
g) during processing the temperature of raw fresh fish shall be maintained at the temperature of melting ice. Fish shall never be left without the protection of ice (except for cooked intermediate products).

Requirements

4.1. Facilities and Equipment Hygiene

4.1.1. General Requirements

4.1.1.1. The potential effects of harvesting and handling of products, on-board vessel handling or in-plant production activities, on the safety and suitability of fish, shellfish and their products shall be considered at all times. In particular this includes all points where contamination may exist and taking specific measures to ensure the production of a safe and wholesome product.

4.1.1.2. Buildings, materials, utensils and all equipment in the establishment, including drainage systems, shall be maintained in a good state and condition.

4.1.1.3. Equipment, utensils and other physical facilities shall be kept clean and in good repair.

4.1.1.4. The type of control and supervision required necessary shall take in consideration the size of the operation and the nature of its activities.

4.1.1.5. Cross contamination from unsanitary objects to food, food-packaging material and other food contact surfaces, including utensils, gloves and outer garments shall be prevented.

4.1.1.6. Pet food and fish meal or oil production and packing shall be done in a separate building from which fish and fishery products for human consumption are processed.

4.1.1.7. A Hygiene control program (SSOP) shall be set-up and implemented in a continuous manner.

4.1.2. Repair and Maintenance

4.1.2.1. Maintenance activities shall be noted on a maintenance schedule, or similar, with appropriate target dates for completion.

4.1.2.2. Repairs shall be carried out as soon as possible without interference or contamination to handling and processing and may cause the facilities to close during certain repairs. After repairs have been completed, processing equipment or facilities shall be subjected to thorough cleaning and sanitizing prior to recommencement of processing

4.1.3. Cleanliness and Maintenance of Handwashing, Hand Santizing and Toilet Facilities

4.1.3.1. Provision shall be made to ensure the condition of hand washing facilities, toilet facilities and showers are maintained in good hygienic and repair condition.

4.1.4. Permanent Cleaning and Disinfection Schedule of the Production Facility

4.1.4.1. A permanent programme of cleaning and disinfection schedules shall be drawn up to ensure that all parts of the facility and equipment therein are cleaned appropriately and regularly.

4.1.4.2. The schedule shall be reassessed whenever changes occur to the facility and or to the equipment.

4.1.4.3. The schedule shall include a "clean as you go and as you do" policy.

4.1.4.4. Schedules shall be implemented to:

a) prevent the buildup of waste and debris;
b) protect the fish, shellfish and their products from contamination;
c) dispose of any rejected material in a hygienic manner; and
d) ensure personal hygiene and health standards;

4.1.4.5. Testing of cleaning and disinfection routine shall be done to verify the effectiveness of the schedules. Each week, or more frequently if necessary, a microbiological analysis (total plate count or equivalent) should be made of work surfaces, fish boxes and equipment which comes into contact with fish, in order to check the efficiency and effectiveness of the cleaning.

4.1.4.6. In each establishment a trained individual shall at least be designated to be responsible for the sanitation of the facility and the equipment within.

4.1.5. Protection of Food from Adulterants

4.1.5.1. Provisions shall be made to ensure food is not being adulterated from food packaging material, food contact surfaces and from various microbiological, chemical and physical contaminants, such as lubricants, fuel, pesticides, cleaning compounds, sanitising agents, condensate and floor splash.

4.1.5.2. Separation of functions and areas shall be designated for food grade and non-food grade items in accordance with section 4.1 and section 4.2 of this Standard.

4.1.6. Pest Control and Management

4.1.6.1. Good hygienic practices shall be employed to avoid creating an environment conducive to pests.

4.1.6.2. Plant grounds, vicinity and facilities shall be kept free of litter, waste and does not provide a condition to attract pests.

4.1.6.3. Pest control programmes shall include preventing access, eliminating harbourage and infestations, and establishing monitoring detection and eradication systems.

4.1.6.4. Physical, chemical and biological agents shall be properly applied by appropriately qualified personnel.

4.1.6.5. A permanent documented Pest Control Schedules shall be implemented in continuous manner to prevent access, harborage and infestation of pest.

4.1.6.6. The Schedule shall adopt a clear structure with identification and description of the relevant actions and parameters as outlined in section 12.5.2 of this Standard.

4.1.6.7. A pest control schedule and locality map shall be kept and made available to competent authority for verification.

4.1.6.8. Accurate and legible records of the location and implementation of pest control schedules shall be kept and made available to the competent authority for verification.

4.1.6.9. Domestic animals are not permitted within the boundaries of a fish processing establishment, unless otherwise specified in section 4.4.3 of this Standard.

4.1.6.10. Pest control shall not constitute a hazard to human health and product safety.

4.1.6.11. Pesticides used for pest control shall be supported by a Material Safety Data Sheet (MSDS) and used by trained personnel.

4.1.6.12. Effectiveness of pest control system shall be undertaken with application of relevant follow-up pest management measures. Evidences of such shall be made available.

4.1.7. Storage of Chemicals and Hazardous Substances

4.1.7.1. Pesticides, cleaning agents or other substances which could represent a hazard to health and food shall be suitably labelled in English with a warning about their toxicity and use and extreme care taken to avoid the chemicals contaminating food, food contact surfaces and ingredients.

4.1.7.2. Hazardous substances shall be stored in lockable rooms or cabinets used only for that purpose and handled and accessed only by authorised and properly trained persons.

4.1.7.3. Wet and dry chemicals shall be stored separately to avoid accidental mixing due to leakage or spillage.

4.1.7.4. No substance which could contaminate food may be used or stored in food handling areas or be stored with any product, ingredients or product packaging materials.

4.2. Personnel hygiene

4.2.1. Communicable Diseases

4.2.1.1. No person who:

a) is suffering from or a carrier of a communicable disease;
b) is suffering from a condition causing a discharge of pus or serum (e.g. weeping sore, infected cuts, boils) from any part of the head, neck, hands or arms; and
c) has reason to suspect there is a chance of transmitting a disease producing organism to the product

shall prepare, pack, or handle any material likely to be used in the manufacturing of the product.

4.2.1.2. Workers suspected of suffering from any of the conditions given in section 4.2.1.1 of this Standard shall not be permitted to handle exposed fish until such time they have a medical clearance from a registered medical practitioner indicating that he or she is free from infection unless assigned to duties where there is no risk of contamination to fish.

4.2.2. Protective Clothing

4.2.2.1. All personnel entering the processing area shall at all times:

a) wear suitable protective clothing including beard and moustache covers and footwear;
b) if the person is wearing gloves-ensure that the gloves are in a sound, clean and sanitary condition; and
c) all personnel and visitors (including contractors) entering the processing area shall at all times abide to clauses (a) and (b) of section 4.2.2.1 of this Standard and or according to the company visitor's policy requirements.

4.2.2.2. If a person wears disposable gloves or other disposable protective clothing in the fish and fishery products handling areas, the disposable clothing shall be discarded after single use and shall not be reused.

4.2.2.3. Protective clothing worn by persons in fish and fishery products handling areas shall:

a) not have an outer breast pocket or sewed on buttons;
b) be clean and lightly colored; and
c) be either washable or disposable;

4.2.2.4. Protective clothing including hats, hairnets, boots, coats, aprons and gloves shall be maintained in clean and in good repair and condition.

4.2.2.5. Protective outer clothing including aprons, headgear and gloves used in the processing area shall not be worn outside this area. Footwear worn outside the factory must be thoroughly cleaned and sanitized prior to entry back into the factory after breaks or at the commencement of work.

4.2.2.6. Protective clothing shall not be taken out of the factory by workers and laundered, this is prohibited. These includes, aprons, shirts used as immediate garments, hairnets and gum boots.

4.2.3. Personal Cleanliness and Handwashing

4.2.3.1. All staff while on duty in food handling areas should maintain a high degree of personal cleanliness.

4.2.3.2. Unhygienic behaviour that can result in the contamination of food products such as chewing, eating, spitting, smoking and shall be prohibited in fish and fishery product handling areas. Appropriate signage must be placed within the fish handling areas to warn fish handlers.

4.2.3.3. All personnel shall wash and sanitise their hands:

a) prior to entering fish and fishery product processing areas;
b) immediately after using the toilet;
c) after handling dirty or contaminated materials;
d) after cleaning procedures, handling sanitizers and similar cleaning chemicals; and
e) when handling food, ingredients and items used in food handling immediately after handling any material that may be capable of transmitting contaminants.

4.2.3.4. The wearing of clean gloves does not exempt the wearer from having to thoroughly wash their hands.

4.2.3.5. Maintenance personnel shall take extreme care in the timely removal of all the used scraps once their work is over.

4.2.4. Sores and Wounds

4.2.4.1. Sores and wounds must be covered with a clean waterproof dressing that is securely attached and covered with a glove.

4.2.4.2. First aid kit containing impermeable dressings for cuts and sores shall be made available on site.

4.2.5. Personal Effects and Clothing

4.2.5.1. Personal effects including clothing shall not be taken into food handling areas.

4.2.5.2. Polished fingernails, false fingernails and personal accessories are not permitted by those persons handling fish and fishery products with bare hands.

4.2.5.3. Plain wedding bands may be permitted in the processing plant provided hands are covered with a glove.

4.2.5.4. Jewellery including watches shall not be worn in processing and handling areas.

4.2.5.5. Maintenance personnel, visitors and contractors also need to meet the requirements of this Standard when entering food handling areas.

4.2.6. Personal Hygiene Instruction

4.2.6.1. The processor and exporter shall display signs advising that smoking, eating, drinking and chewing in food handling areas are prohibited.

4.2.6.2. Signs and signage texts shall be in English and the local language and/or in picture form.

4.2.6.3. The management of the processing and export establishment shall arrange for adequate and frequent training of all food handlers in personal hygiene, communicable diseases and good handling practices to ensure that the precautions necessary to prevent cross-contamination is understood by all.

4.2.6.4. The training needs for each category of work force shall be assessed and scheduled for each year.

4.2.6.5. Training shall include reference to relevant parts of this Standard and the requirements of importing countries.

4.2.6.6. At the end of each training programme an evaluation of the training shall be conducted to assess the effectiveness of the training and to ensure that, the objective of training has been clearly delivered to the food handlers.

4.2.6.7. Training records for each person shall be maintained.

4.2.6.8. The operator of an establishment shall allocate responsibility for ensuring compliance with the requirements of this Standard to competent supervisory personnel.

4.2.7. Other Persons with Access to the Processing Facility

4.2.7.1. Precautions shall be taken to prevent visitors including contractors to food handling areas from contaminating food. This shall include the use of protective clothing and good hygiene practices.

4.2.7.2. Visitors shall comply with the applicable requirements of this Standard.

4.2.7.3. A visitor's policy shall be documented.

4.2.8. Internal Testing Laboratory Personnel

4.2.8.1. Personnel in testing laboratories shall change their uniform prior to entering food-handling areas.

4.2.8.2. Personnel in testing laboratories shall comply with requirements in section 4.2.7 of this Standard.

4.3. Cleaning, Washing and Sanitizing of Facilities and Equipment

4.3.1. All areas in which fish is handled or stored, or in which materials which come into contact with fish are handled or stored, shall be kept clean and in good condition.

NOTE: *This requirement also applies to sanitary facilities, store rooms, laboratories and cold and chill stores.*

4.3.2. All equipment in the processing areas shall be kept in a clean condition.

4.3.3. After each work period, all parts of the plant and all equipment shall be washed and cleaned with a suitable detergent. This shall be followed by a disinfectant rinse. The use of chlorine at 50 ppm free chlorine residual or a suitable quaternary ammonium compound is recommended for this purpose.

4.3.4. The footbath shall be kept filled with a disinfectant solution. The use of a quaternary ammonium compound is recommended. The solution shall be changed as often as necessary.

4.3.5. No items shall be stored in processing areas, which are not essential for the processing of fish. Cleaning and packaging materials shall be stored separately.

4.3.6. Food contact surfaces must be adequately rinsed after the use of any detergents prior to handling of the food unless an approved non-rinse detergent/sanitizer is used.

4.3.7. Adequate precautions shall be taken to prevent food from being contaminated during cleaning or sanitising of rooms, equipment or utensils.

4.3.8. Detergents and sanitizers shall be prepared for use according to the manufacturers' instructions.

4.3.9. All chemical compounds used as cleaners, sanitizers, soaps, detergents, lubricants or pesticides shall be supported by Material Safety Data Sheet (MSDS) made available to the competent authority during inspections and confirming suitability of use in food processing premises.

4.3.10. If chemicals are placed in alternate containers labels shall be in English and the local language where appropriate.

4.3.11. Operators of fish processing establishments must verify the effectiveness of cleaning operations and make records available to the competent authority during verification inspections.

4.3.12. Sanitizers used must be used at concentrations recommended by the chemical supplier for the purpose of use and documented in Standard Operating Procedures.

4.3.13. All chemical compounds shall be appropriately stored in designated area with proper labelling.

4.4. Plant Exterior Hygiene

4.4.1. The area surrounding the plant shall be kept clean and free of accumulations of water, dust, waste, by products and other materials which could contaminate the product.

4.4.2. Incoming material or out-going product areas should be suitably protected from dust, rain, pest and other foreign objects.

4.4.3. Where guard dogs are present, they shall not have access to any area in which fish is handled, including the loading and unloading areas.

4.5. Water, Steam and Ice

4.5.1. Use of Potable Water and Safe Water Monitoring

4.5.1.1. Adequate potable water or clean seawater supply shall be made available.

4.5.1.2. Water which comes into contact with fish and fishery product and food contact surfaces shall not represent a source of contamination.

4.5.1.3. An ample supply of potable water and clean seawater shall:

a) be available under adequate pressure and volume;
b) be provided with adequate facilities for its storage where necessary and distribution;
c) be provided with adequate protection against contamination;
d) meet the requirements of section 11.2.1 and section 11.3.7 of this Standard if used in food handling areas;
e) meet specific importing country requirement for water testing.

NOTE: *Where the operators conduct full water testing, the result shall comply with requirements in section 11.2.1 and section 11.3.7 of this Standard.*

4.5.1.4. Non-potable water may be used for steam production, refrigeration, fire control and other similar purposes but shall not be connected to potable water lines.

4.5.1.5. The use of clean seawater may be permitted for the following purposes:

a) as a transportation medium for the raw material (unloading and movement at receiving);
b) as a chilling medium for raw material or whole fish;
c) ice making; and
d) thawing of fish intended for canning.

4.5.1.6. The use of seawater is strictly not permitted for the following purposes:

a) application or addition to the processing of final product; and
b) for use as hot water.

4.5.1.7. All storage tanks and pipes used in handling water shall be routinely cleaned and be free from rust and other sources of contamination.

4.5.1.8. Harbour seawater shall not be used either for washing of fish nor cleaning and sanitizing of food contact surface including hand washing.

4.5.1.9. Water can only be used and reused or re-circulated if it is potable.

4.5.1.10. Retort cooling water shall be chlorinated to a level of either 1 ppm free residual chlorine prior to retorting or to a sufficient amount that so that after the cooling there is still a detectable level of free residual level at the water outlet.

4.5.1.11. All storage tanks, cooling towers, pipelines or the like utilized in handling the water shall be constructed to facilitate inspection and cleaning.

4.5.1.12. Water used for thawing fish that was frozen and intended for canning shall not present a risk of contamination.

4.5.2. Use of Steam

4.5.2.1. Steam used in direct product contact (including additives used in the generation of steam) shall be free of contamination.

4.5.3. Use of Ice

4.5.3.1. Ice shall be made from potable water and or clean seawater, handled and stored so as to protect it from contamination.

4.5.3.2. Where ice is sourced from outside, a guarantee of the potability of the ice between the manufacturer and user shall be in place, and the ice provider shall provide:

a) certificate of analysis; and
b) evidence of approval of the ice plant by NFA and evidence for verification.

4.6. Product Handling Containers and Trays

4.6.1. The containers and trays shall have clear differentiation and identification of use where applicable.

4.6.2. The containers and trays shall be used only for the purpose identified to prevent cross contamination.

4.6.3. The containers and trays shall be cleaned, washed and sanitized after use.

4.6.4. Where containers are used for fresh or frozen operation, they shall:
a) protect fish from contamination;
b) preserve fish in a hygienic manner; and
c) allow for easy drainage of water.

4.7. Fish Handling and Manufacturing

4.7.1. Unloading of Raw Material

4.7.1.1. On arrival (or before) at the plant the raw material shall be tested in accordance with Section 11 where applicable.

4.7.1.2. Fish being unloaded shall never be left outside the plant.

4.7.1.3. The method and timing of unloading of fish from vehicles or fishing boats at the fish processing plant shall be designed to minimise the contamination of the product by birds, and its exposure to the sun.

4.7.1.4. Employees shall endeavour to protect the fish from physical damage during the unloading from the vehicle.

4.7.1.5. All the equipment used in the unloading of fish shall be washed and disinfected after each batch. This applies to fish boxes, pallets, conveyors and other miscellaneous equipment.

4.7.1.6. The storage or initial stages of processing (washing of raw material, separation of extraneous material and gutting) shall commence as soon as possible after unloading the vehicle.

4.7.1.7. Any system utilized for the direct unloading of fishing boats to the establishment plant or cold store shall be designed to minimise the contamination of the product by birds, and its exposure to the sun.

4.7.1.8. During the unloading of vessels, the hatches of the holds should be open for the minimum time possible, and shall be closed during breaks in the unloading.

4.7.2. Product Identification

4.7.2.1. All raw materials, intermediate products during processing and final products shall be identified with a batch number so that it is possible to ensure the traceability of products, source of supplies and processing parameters.

4.7.3. Thawing of Raw Material

4.7.3.1. Where frozen food is thawed or tempered for the purpose of use in production, it shall be done under controlled temperature and hygienic conditions.

4.7.3.2. Water produced from thawing or tempering shall be positively ducted to a drain unless it can be proven there is no risk of contamination to product or product contact surfaces.

4.7.3.3. Product temperature fluctuations shall be kept to a minimum during the thawing or tempering operation.

4.7.3.4. The thawing of fish and fishery product is to be undertaken in such a way as to minimise the risk of growth of pathogenic microorganisms and the formation of toxins in the foods.

4.7.3.5. During thawing, fish and fishery products are to be subjected to temperatures that would not result in a risk to health. Where run-off liquid from the thawing process may present a risk to health it is to be adequately drained.

4.7.3.6. Following thawing, fish and fishery products shall be handled in such a manner as to minimise the risk of growth of pathogenic microorganisms and the formation of toxins.

4.7.3.7. Water used for thawing shall be potable and free from contaminants. Clean water may also be used for thawing, where acceptable.

4.7.3.8. Thawed, unprocessed fish and fishery product must be maintained at temperatures approaching that of melting ice.

4.7.3.9. Appropriate thawing methods shall be applied to achieve product with uniform temperature

4.7.4. Handling and Storage of Fresh Products

4.7.4.1. The fish shall be cleaned as soon as it arrives in the processing area. This shall include:
a) the separation of extraneous material (eg. crabs, fish, wood, detritus, mud, etc); and
b) the washing of fish with adequate quantities of clean potable water, chilled to below 5ºC.

4.7.4.2. Tanks used for the washing of fish shall be emptied completely and washed and disinfected during every stoppage in the process (eg. between different batches).

NOTE: *The use of a fish washing tank is recommended, with a capacity adequate for normal production levels. The temperature of the water in the tank shall be maintained below 5ºC by the addition of ice in adequate quantities.*

4.7.4.3. The chilling of fish and fishery products shall be performed as fast as possible to prevent undesirable physical, biochemical deterioration as well as microbiological proliferation.

4.7.4.4. The temperature of fish that has been chilled shall be maintained at temperatures approaching that of melting ice.

4.7.4.5. Chiller tank facilities or the provision for sufficient ice may be provided in premises where for the purpose of cooling products to the temperature approaching that of melting ice.

4.7.4.6. These facilities shall be adequate to cool and maintain the product within that range until the product is removed for further processing or consumption.

4.7.4.7. If more fish shall arrive at the plant than can be processed immediately or where chilled, unpackaged products are not dispatched, prepared or processed immediately after reaching the establishment they must be stored under ice in suitable tanks or containers and held in the establishment's chill room in order that the temperature of the product is kept at 0ºC.

4.7.4.8. Re-icing must be carried out as often as is necessary.

4.7.4.9. The ice used, with or without salt, must be:
a) made from potable water or clean seawater; and
b) be stored under hygienic conditions in receptacles provided for the purpose.

4.7.4.10. Receptacles used for ice must be kept clean and in good repair.

4.7.4.11. Packed fresh products must be chilled with ice or mechanical refrigeration plant creating similar conditions.

4.7.4.12. Temperatures of chill store and the product along with time of measurement shall be accurately recorded at least every 4 hours, by the online operating personnel in the designed format to ensure time-temperature control to prevent histamine formation and or spoilage.

NOTE: *It is recommended that all product which is stored before processing is eviscerated. The priority should be to eviscerate the fish as soon as possible after arrival at the plant (if not done previously) in order to maintain the intrinsic quality of the product.*

4.7.4.13. Only the best quality fish shall be stored at the plant. All product unfit for human consumption shall be removed from the plant and kept separately.

4.7.4.14. Fish shall not be stored in heaps, and the depth of storage containers shall be kept to a minimum to prevent damage of the fish. Tanks should contain ice before filling with fish in order to prevent their damage and effective chilling.

4.7.4.15. The duration of storage of raw material shall be kept to a minimum.

4.7.4.16. Fish which is held on the tables awaiting processing shall be protected by adequate quantities of ice. Due to the fact that the tables provide a good heat transfer medium, the fish shall rest on a layer of ice, as well as being covered with it.

4.7.4.17. The quantities of fish on the work tables at any one time shall be kept to a minimum.

4.7.4.18. The internal temperature of the fish should be maintained near the temperature of melting ice during processing and handling on the worktables.

4.7.4.19. During stoppages in the process, fish should not be left on the work tables. Processing of fish already on the tables shall be finished before the workers leave their posts.

4.7.4.20. The work tables shall be washed and disinfected during each break in processing.

4.7.5. Preparation of Fresh and/or thawed raw material for Processing

4.7.5.1. Effective measures shall be taken to prevent cross-contamination of food.

4.7.5.2. Pre-process operations of the following:

a) prawn heading, de-veining, and peeling;
b) lobster heading, gutting and de-veining; and
c) dis-membering, gutting and scaling of fish.

shall take place in areas separated by location or partition from packing or further processing operations to avoid contamination to the final product.

4.7.6. Parasite Inspection

4.7.6.1. Where product specified in section 11.4.2 of this Standard are handled and processed, visual inspection for parasites shall be carried out on a representative number of samples where applicable by competent person(s).

4.7.6.2. In the case of manual evisceration or filleting, the nature and frequency of visual inspection of parasites shall be determined:

a) continuously by the operator at the time of the evisceration or filleting and washing; and
b) by drawing and checking representative samples of a minimum of 10 fish or fillets per lot.

4.7.6.3. Operating practices shall be designed to avoid contamination of products, product contact surfaces and packaging materials.

4.7.7. Fresh Products and/or Loining / Preparation Post-Cooking

4.7.7.1. Effective measures shall be taken to prevent cross-contamination of food.

4.7.7.2. Cutting operations such as filleting, steaking or slicing of fish shall specifically take place in a separate area of the plant to that used for heading and gutting operations.

4.7.7.3. All equipment used for the filleting, slicing, skinning of fish shall be washed and disinfected regularly during the process.

4.7.7.4. All persons who fillet fish shall wash their hands well before commencing their work. If they wear gloves they must be new disposable.

4.7.7.5. Equipment and utensils shall be treated with a disinfectant (eg. chlorine at 50 ppm) at the end of each day.

4.7.7.6. All steps in the production process including packing shall be performed under proper time-temperature control.

4.7.7.7. In the case of the fillets which are not immediately packed or frozen, they should be stored at 0ºC with adequate quantities of ice, or in a chill store.

4.7.7.8. Where the packed product is to be frozen, the product shall be transferred to the pre-cooled freezer as rapidly as possible and frozen to a core temperature of –18ºC or colder as quickly as possible.

4.7.8. Fresh Fish dispatch

4.7.8.1. Where fresh fish is not to be packed immediately it shall be stored with adequate quantities of ice to maintain its temperature at 0ºC.

4.7.8.2. The temperature of the fish at the moment of packing shall be 0ºC. Fresh fish shall be rapidly packed into the cartons in order to minimise the rise in temperature of fish.

4.7.8.3. A chill store (at 0ºC) shall be provided in all plants processing fresh fish and fish products.

4.7.8.4. Any plastic bags of dry ice, "gel pack" or alginates or similar that are used to keep the product chilled shall be discarded if the fish is to be repacked.

4.7.9. Evacuation of waste

4.7.9.1. All necessary precautions shall be taken to prevent the contamination of fish and fishery products including food contact surfaces, with bacteria from residues and wastes.

4.7.9.2. Residues and wastes shall be removed regularly from the main processing area and other relevant food facilities to the area allocated for their temporary storage. They shall be removed from the vicinity of the plant at regular intervals, in order to avoid the development of smells and the presence of insects and rodents.

4.7.9.3. Waste shall be removed from the temporary storage at the end of the day or of the shift or more often if necessary to avoid contamination.

4.7.9.4. Immediately after the disposal of waste, receptacles used for the storage and any equipment which has come into contact with the waste shall be cleaned and sanitised.

4.7.9.5. All waste disposal bins shall be clearly identified with tight-fitting lids where necessary to prevent contamination and avoid pests.

4.7.9.6. Wastes shall be disposed in a way that cannot contaminate water and food supplies and cannot offer harbourage or breeding places for rodents, insects or other vermin.

4.7.9.7. The waste storage area shall be kept clean.

4.7.9.8. Waste disposal, storage and transport shall be done in compliance with the environmental dispositions laws of PNG.

4.7.10. Freezing of Fish and Fishery Products

4.7.10.1. Frozen fish and fishery products shall be protected from dehydration and freezer burn through:

a) the application of glaze or adequate packaging; and/or
b) preventing temperature fluctuation during storage.

4.7.10.2. Fish and or fishery products shall be frozen in a chamber specifically designed for this purpose and as rapidly as possible be frozen to a core temperature of –18°C or colder.

NOTE: *Freezing in the cold store is prohibited.*

4.7.10.3. The freezer shall have temperature recording device in a place where it can be easily read.

4.7.10.4. Where applicable, the sensor for the temperature recording device shall be situated in the warmest part of the freezer.

4.7.10.5. The records of temperature monitoring during freezing shall be available to the competent authority for verification.

4.7.10.6. Freezing equipment shall be sufficient to achieve rapid reduction in temperature so that the temperature of the product laid down in the standard is obtained in the shortest possible time (-18°C or colder). To achieve these conditions the establishment shall meet the conditions referred in section 3.9.2 of this Standard.

4.7.10.7. The process shall not be regarded as completed unless and until the product temperature has reached -18°C at the thermal centre after thermal stabilisation.

4.7.10.8. During the unloading from the freezer, the internal temperature of the fish shall not be permitted to rise above -18ºC.

4.7.10.9. The packing of master cartons or similar shall be done rapidly to prevent the internal temperature of the fish rising above -18ºC.

4.7.11. Storage of Frozen Fishery Products

4.7.11.1. Processed and packed fish and fishery products shall be stored under relevant conditions such as: Frozen products held at temperatures at -18°C or colder.

4.7.11.2. A record for each room of cold store temperatures shall be maintained by:

a) an automatic temperature recording device that shall be checked at least twice a day. Such device must be capable of producing records that can be easily retrievable;
b) manual readings taken at appropriate intervals. This option shall include an alarm system to indicate when deviation above the prescribed temperature occurs; and

c) temperature record charts should be kept for at least the period during which the products are stored, for inspection by supervisory authorities.

4.8. Conditions Cold and Chill Stores and Freezers

4.8.1. The floor and general structure of the cold and chill stores shall be maintained in good condition.

4.8.2. All cold and chill stores and blast freezers shall be kept clean and free from accumulations of ice.

4.8.3. In order to permit the free circulation of air within the cold store, product should not be stored in contact with the walls or floor. The use of a pallet and rack system is recommended.

4.8.4. Cardboard shall not be placed on the floor for the purposes of keeping it clean.

NOTE: *Cardboard will become dirty very rapidly, and could therefore represent a source of contamination.*

4.8.5. All personnel who:
a) unload the freezers;
b) pack the master cartons; and
c) load and unload the cold store,
shall wear boots and protective clothing. If overcoats and gloves are worn, these should be kept clean and in good condition.

4.8.6. Poultry, meat and other products which may contaminate the fish shall not be stored in the cold store.

4.8.7. The cold store shall be well organised, with separation of different products and batches.

4.8.8. Whenever possible any products which have been stored longest should be the first to be distributed.

4.9. Product Separation for Specific Market Requirements

4.9.1. Where importing country requires segregation of finished products intended for their market to be stored separately from other markets to control unqualified final products ending up in specific market, food business operators shall ensure systems are in place to control such.

4.10. Canned products

4.10.1. Approved Retort Process Parameters

4.10.1.1. Where appropriate requirements for approved retort process parameters shall be implemented according to ANNEX B1 and B2 of this Standard.

4.10.2. Post Process Operation

4.10.2.1. Where appropriate requirements for post process operation shall be implemented according to ANNEX B1 and B2 of this Standard.

4.11. Raw Material, Ingredients, Prohibited Additives and Packaging Materials

4.11.1. Raw materials, ingredients and packaging materials stored in an establishment shall:
a) be maintained under conditions that will prevent spoilage or damage;
b) be protected against contamination by physical, chemical or microbiological hazards and other objectionable substances;
c) be assessed for suitability for processing before use;
d) be traceable to the source;
e) be sourced from approved suppliers accompanied by supplier guarantees or other suitable documentation (e.g. MSDS sheets) to confirm suitability for use; and
f) meet importing country requirements.

4.11.2. Stock rotation of raw materials and ingredients shall be practiced so as to ensure first in first out principles are followed.

4.11.3. Raw materials and ingredients unfit for human consumption shall be segregated for disposal.

4.11.4. Raw materials and ingredients unfit for human consumption shall be disposed of in a way that avoids contamination of food, water supplies, and ingredients and other food contact materials and sources.

4.11.5. No material other than those used for immediate processing shall be stored within the processing area.

4.11.6. No material shall be added to the raw material with the intention of preserving the product from enzymatic and bacterial deterioration (preservatives), changing the colour of the product (colouring) or preventing the oxidation of fats (antioxidants).

4.11.7. Exceptions to section 4.11.6 of this Standard are:
a) salt may be added to fish in quantities necessary to improve the flavor; and
b) cryoprotectant polyphospates (sodium or potasium pyrophosphate or sodium or potassium tripolyphosphate.) may be added to glaze water in commercially recommended quantities not exceeding the regulatory limit expressed as phosphate P_2O_5.

4.11.8. Sodium metabisulphite or other sulphites may be added only to crustacea to prevent melanosis, providing that levels in the final product do not exceed the regulatory limit expressed as SO_2.

4.11.9. Where appropriate, specific process control requirements for each product type in order to comply with requirements under section 4.11.8 shall be in line with Annex B of this Standard.

4.12. Calibration of Equipment and Instruments

4.12.1. A policy for calibration of measuring and recording devices shall be drawn up, stating the frequency of both internal and external calibration and records of calibration must be maintained.

4.12.2. All measuring and test equipment, gauges and devices used for critical measurements, used in connection with food processing shall be calibrated for accuracy and shall be easily readable.

4.12.3. All measuring instruments and test equipment, gauges and devices use in connection with food processing, storage and transportation shall be calibrated and certified by an accredited body.

4.12.4. A calibration system shall be applied in-house utilising external and independent calibration organisations.

4.12.5. The system shall have Calibration Schedules maintained for all instruments and equipment, which have to undergo calibration on a regular basis and clearly indicate the due date of the next calibration.

4.12.6. Each instrument calibrated should be equipped with a calibration certificate traceable back to national measurement reference standards and a calibration sticker affixed to it for inspection purposes.

4.12.7. The records of the calibration shall be maintained for two (2) years, unless otherwise specified in this standard.

4.12.8. In-House Reference standards for measurement shall meet the following requirements:
a) one reference standard shall be calibrated for each measurement purpose and shall be used for in-house calibration of the working equipment and records maintained;
b) reference standards maintained for the sole purpose of in-house calibration of working standards and equipment shall be of an accuracy and stability fit for its purpose;
c) reference standards shall be calibrated as in section 4.12.3 of this Standard and the calibration records kept for the entire history of the Standards and Artefact;
d) use of any external calibration supplier providing calibration services shall comply with ISO/IEC 17025; and
e) personnel performing calibrations shall be appropriately qualified and competent.

4.12.9. The calibration schedule shall be maintained and carried out by a trained and competent person.

4.13. Processing and Production Records

4.13.1. The processing and export establishment shall keep records of each lot of fish and fishery products processed for inspection by an Authorized Officer.

4.13.2. Records of quantities processed, time-temperature controls, sampling and testing and other process records or relevant documents, shall be kept demonstrating that fish and fishery products have been processed in accordance with company's written standard and this Standard.

4.13.3. For each lot of farm raised fish and fishery products and live fish intended for export or transport to a processing and export establishment, shall be accompanied by a document containing the following information:

a) the harvesting personnel identity and signature;
b) the date of harvesting;
c) the location of the harvesting area or farm;
d) the species and quantity;
e) data related to any treatment given to the fish (identifying the veterinary medicines applied, the time of application and the withdrawal period and the pond)
f) the approval number of the place of destination (for export, or processing facility); and
g) details provided in accordance with the Fisheries Management Plan(s).

4.13.4. Records of each lot of fish and fishery products must date stamped by the receiver, kept on file for a period of at least the shelf life of the product plus one year by the operator and made available to the competent authority when requested.

4.13.5. Records of deviations in process must follow effective corrective action measures and records kept for verification.

SECTION 5: ICE PLANTS

Application

This section shall be applied to:

a) facilities that manufacture ice that is intended to be utilized by licensed operators that are involved in the fishing, harvesting, transport, storage, handling and processing of fish and fishery product; and
b) standalone ice plants approved by NFA.

NOTE: *Each ice plants shall be approved by NFA.*

Requirements

5.1. Production Area

5.1.1. Where appropriate, equipment and instruments used in the manufacture of ice shall comply with requirements in section 3.10 of this Standard.

5.1.2. Manufacture of products other than ice shall be done in a separate building from which ice is manufactured.

5.1.3. The ice plant shall produce ice quantities adequate to the needs of the process, including:
   a) transport of raw material from the port;
   b) storage of raw material before processing; and
   c) chilling of fish during processing.

NOTE: The use of ice flakes is recommended.

5.1.4. If large blocks are produced they shall be crushed by machine.

5.1.5. Manual crushing of block ice shall be prohibited.

5.1.6. Insulated ice store shall be provided.

5.2. Repair and Maintenance

5.2.1. Repair and Maintenance activities shall be noted on a maintenance schedule, or similar, with appropriate target dates for completion and comply with requirement in section 4.1.2 of this Standard.

5.3. Storage areas

5.3.1. Floors, walls, ceilings, doors and lighting shall comply with requirements in section 3.9.1.6 of this Standard.

5.4. Delivery Area

5.4.1. Good general condition of hygiene and maintenance of the ice delivery area shall comply requirement in section 3.9.1.6 of this Standard.

5.5. Pest and Vermin Control

5.5.1. Where appropriate, pest and vermin control shall comply with requirements in section 3.9.1.6 and section 4.1.6 of this Standard.

5.6. Water Safety

5.6.1. Where appropriate, safety of water shall comply with requirements in section 4.5.3 of this Standard.

5.7. Hand Washing Facility

5.7.1. Where appropriate, requirements for hand washing facility shall comply with requirements in section 3.8 of this Standard.

5.8. Changing Room and Toilets

5.8.1. Where appropriate, requirements for changing rooms and toilet facilities shall comply with requirements in section 3.17 of this Standard.

5.9. Hygiene Conditions

5.9.1. Where appropriate, requirements for ice handling shall comply with requirements in section 4.1.1 of this Standard.

5.10. Staff Training and Hygiene

5.10.1. Where appropriate, staff shall demonstrate minimal understanding of the requirements of personal and food hygiene.

SECTION 6: COLD STORES

Application

This section shall be applied to stand alone facilities Licensed by NFA that store fish and fishery products that is intended to be processed or placed on the market by NFA Licensed operators.

Requirements

6.1. Production Area

6.1.1. Where appropriate, equipment and instruments used in the cold storage facility shall comply with requirements in section 3.10 of this Standard.

6.2. Repair and Maintenance

6.2.1. Repair and Maintenance activities shall be noted on a maintenance schedule, or similar, with appropriate target dates for completion and comply with requirement in section 4.12 of this Standard.

6.3. Storage Areas

6.3.1. Where appropriate, floors, walls, ceilings, doors and lighting shall comply with requirements in section 3.9.1.2 of this Standard.

6.3.2. Good general condition of hygiene and maintenance of the delivery area shall comply with requirement in section 7.2.1 of this Standard.

6.3.3. Capacity of maintaining raw materials and products at required temperature shall comply with requirements in section 3.9.3 of this Standard.

6.3.4. Requirements for temperature monitoring equipment shall comply with requirements in section 3.9.4 of this Standard.

6.3.5. There shall be good insulation from external temperature from entering the cold room to prevent condensation.

6.3.6. Product should be stacked so that air circulation within the storage room is not impaired.

6.4. Pest and Vermin Control

6.4.1. Where appropriate, pest and vermin control shall comply with requirements in section 4.16 of this Standard.

6.5. Water Safety

6.5.1. Where appropriate, safety of water shall comply with requirements in section 4.5.1 of this Standard.

6.6. Hand Washing Facility

6.6.1. Where appropriate, requirements for hand washing facility shall comply with requirements in section 3.8 of this Standard.

6.7. Changing Room and Toilets

6.7.1. Where appropriate, requirements for Changing Rooms and Toilet facilities shall comply with requirements in section 3.17 of this Standard.

6.8. Hygiene Conditions

6.8.1. Where appropriate, requirements for hygiene control shall comply with requirements in section 4.1.1 of this Standard.

6.9. Staff Training and Personnel Hygiene

6.9.1. Where appropriate, staff shall demonstrate minimal understanding of the requirements of personal and food hygiene.

6.10. Storage of Frozen Fishery Products

6.10.1. Where appropriate, requirements for storage of frozen fishery products shall comply with requirements in section 4.7.11 of this Standard.

SECTION 7: LANDING SITES

Application

This section shall be applied to landing sites integrated together with a fish processing plant and or standalone landing sites approved by NFA.

Requirements

7.1. Construction and Utensils

7.1.1. Equipment and Instruments installed and constructed at the landing site shall be maintained in a manner that can facilitate easy cleaning.

7.2. Landing area

7.2.1. Good general condition of cleanliness and maintenance shall be observed in fish landing areas.

7.2.2. Roads and path ways leading to landing site shall be appropriately sealed.

7.3. Unloading

7.3.1. Unloading activities shall be operated in a manner that minimizes time temperature abuse.

7.3.2. Equipment and handling practice(s) shall not cause damage to fish.

7.4. Ice and Water Usage

7.4.1. Ice and water shall be sourced from a controlled and or approved supplier.

7.4.2. Handling of ice shall minimize the potential for cross contamination.

7.5. Pest and Vermin Control

7.5.1. Where appropriate, pest and vermin control shall comply with requirements in section 4.16 of this Standard.

7.6. By Product Management

7.6.1. Handling practices of by product(s) from vessels and or factory shall effectively prevent cross contamination of raw materials.

7.7. Access

7.7.1. Access of personnel to landing site areas shall be controlled and only authorized persons engaged with fishing vessel(s) and unloading and handling of fish are permitted.

7.8. Training and Hygiene

7.8.1. Where appropriate, staff shall demonstrate good understanding of the requirements of personal and food hygiene.

SECTION 8: TRANSPORTERS

Application

This section shall be applied to:
a) vehicles that transport fish and fishery products to the processing and storage facilities; and
b) vehicles that transport fish and fishery product for export.

Requirements

8.1. Contact surfaces and utensils

8.1.1. Vehicles used for the transportation of chilled or frozen fish and fishery products shall be clean and;
- a) be designed and insulated to maintain fish and fishery products in a chilled or frozen state;
- b) equipped to maintain fish and fishery products in a chilled or frozen state;
- c) have internal surfaces of the means of transport constructed from smooth, corrosion resistant, impervious materials free from cracks and crevices;
- d) have internal surface joints that are smooth or flush and sealed to prevent the entry of water;
- e) the transport facility shall be pest and dust proof;
- f) ramps, if provided, shall not be stowed in the fish storage area;
- g) fish storage area shall be capable of draining and cleaning;
- h) if lighting is supplied the light source shall be covered by a shatterproof cover;
- i) Products shall not be transported with other items that may affect the hygiene conditions;
- j) the hygiene condition of the vehicle or container used for transportation of fish and fishery products shall be monitored and recorded by the supervisory personnel and records shall be available; and
- k) have temperature measuring device installed in the insulated vehicle in which chilled fish and fishery products are being transported.

8.1.2. Vehicles used for the transport of live fish shall:
- a) be clean and capable of being easily cleaned and drained;
- b) be constructed to maintain fish in a healthy condition and ensure a high survival rate;
- c) be capable of protecting the fish from environment and temperature extremes; and
- d) where applicable meet the conditions set out in section 3.10.1 of this Standard.

8.1.3. Vehicles used for the transportation of chilled or frozen fish and fishery products from the wharf or vessel to a shore-based processing establishment or store shall be clean and:
- a) designed and equipped to maintain fish and fishery products in a chilled or frozen state; and
- b) designed and equipped to prevent contamination of the fish and fishery product transported.

8.1.4. The hygiene condition of the vehicle or container used for transportation of fish and fishery products shall be monitored and recorded and records shall be available.

8.1.5. Transporters used for transporting chilled or frozen fish and fishery products shall be used for the intended purpose only.

8.2. Load and Unload

8.2.1. Handling of fish and fishery product during loading and unloading shall be done in a way to prevent cross contamination.

8.2.2. Loading and unloading time shall be managed to prevent time temperature abuse.

8.2.3. Loading and unloading practices should prevent damage to the fish.

8.3. Storage During Transport

8.3.1. During transport, fish and fishery products must be maintained at the required temperature. In particular;
- a) fresh fish and fishery products, thawed unprocessed fishery products, and cooked and chilled products from crustaceans and molluscs, must be maintained at a temperature approaching that of melting ice; and
- b) frozen fish and fishery products, with the exception of frozen fish in brine intended for the manufacture of canned food, must be maintained during transport at an even temperature of not more than -18°C in all parts of the product, possibly with short upward fluctuations of not more than 3°C.

8.3.2. The operator need not comply with section 8.3.1 clause (b) of this Standard when frozen fishery products are transported from a cold store to an approved establishment to be

thawed on arrival for the purposes of preparation and/or processing, if the journey is short and the competent authority so permits. The rise of the fish surface temperature shall be regarded in particular for this assessment.

8.3.3. If fishery products are kept under ice, melted water must not remain in contact with the products.

8.3.4. Fishery products to be placed on the market live must be transported in such a way as not adversely to affect food safety or their viability.

8.3.5. Fresh fish that is to be transported in a vehicle or container shall be equipped with mechanical refrigeration chamber

8.3.6. and be packed in an insulated box with sufficient ice, dry ice or "gel pack" (frozen mixture of water and carboxymethylcellulose or other medium) in order to maintain the temperature throughout the distribution of the product.

8.4. Fuel storage

8.4.1. Fish transporter shall have separate storage for fuel from fish and fishery products and ice.

8.5. Training and Hygiene

8.5.1. Drivers of fish transporting vehicles shall demonstrate good understanding of the requirements of food contact surfaces, personal and food hygiene.

SECTION 9: TRACEABILITY AND PRODUCT RE-CALL

Application

The section shall be applied to all licensed operators. All licensed operators shall have documented policy and procedures for traceability and product recall and ensure the system is effectively implemented.

Where appropriate, this section is will also to low technology operators.

General Principle

An important aspect of quality and safety assurance is to be able to trace products, ingredients, suppliers, retailer, processing operations or storage procedures through the production chain.

Traceability systems are based upon a, one up, one down principle. This means that an operator must be able to identify all suppliers and the raw materials, feed or ingredients supplied to the establishment and all the recipients and the products the establishment supplies to the recipients. It is also an important anti-fraud, and anti-fraudulent practice tool as well for recall procedures.

Traceability is not only applicable to products and in-between operators, it is also essential within the processing operations and the HACCP system relating to the production steps and controls.

Labelling of the product is essential for traceability and recall purposes.

Requirements

9.1. Essential Criteria

9.1.1. The licensed operator shall include the following as part of the traceability and recall system:
- a) origin and source of raw materials;
- b) origin and source of ingredients, packaging materials or any other processing aid(s);
- c) lot identification;
  - i) the processing history
  - ii) the product distribution; and
- d) location after delivery.

9.1.2. When setting up traceability systems, the operator should ensure that the system has the ability to answer 5 key questions;

a)	Where did it come from?	Referring to inputs
b)	How did it get here?	Referring to inputs
c)	What did we do with it?	Referring to processing parameters
d)	Where did it go?	Referring to outputs
e)	How did it get there?	Referring to outputs

9.1.3. The operator should ensure that traceability systems have the ability to:
- a) track (following the product). This is to follow the route taken from the point of origin to the final destination; and
- b) trace (going back in the chain). This is used to identify the origin of a product, or product lot, covering anywhere between the point of consumption all the way back to the first point in the chain.

9.1.4. Any one of the following systems of traceability shall be used for the purpose of product recall and other purposes:
- a) paper system;
- b) bar code systems; and/or
- c) electronic or auto-based systems.

9.1.5. Traceability system database should include:
- a) list of approved suppliers/producers;
- b) supplier data;
- c) supplier number;
- d) batch coding system used;
- e) list of their suppliers and code numbers; and
- f) register and recording system.

9.1.6. Traceability system should integrate physical separation of batches by:
- a) Boxes and/or containers;
- b) Labelling; and
- c) Colour coding (boxes and/or tags).

9.1.7. The licensed operator shall perform mock traceability and recall exercises to assess the effectiveness of the traceability and recall procedures and the record of these exercises shall be maintained accordingly.

9.1.8. Identification labels and codes assigned to the products that is intended to be placed on the market shall be capable of facilitating traceability through relevant documentation and information.

9.1.9. The labels used shall comply with requirements of labeling in section 11.5.3 of this Standard.

9.1.10. The licensed operator shall make provision for verification and audit of the traceability system to ensure it is being implemented effectively.

9.1.11. The licensed operator shall demonstrate through implementation of the "Traceability" and Recall procedures at the request of the Authorised Officer for purpose of verification.

NOTE: *In setting up a traceability system the characteristics of good traceability systems vary and cannot be defined without reference to the system's objectives. Different objectives help drive differences in the breadth, depth, and precision of a traceability system:*

a) breadth describes the amount of information the traceability system records;
b) the depth of a traceability system is how far back or forward the system tracks; and
c) precision reflects the degree of assurance with which the tracing system can pinpoint a particular food product's movement or characteristics. Precision is determined by the unit of analysis used in the system and the acceptable error rate.

9.2. Records

9.2.1. Licensed operator shall maintain records and ensure efficiency of retrieving records of all traceability and product recall exercise and make available for verification of accuracy of records.

SECTION 10: FISHING VESSELS

Application

This section shall be applied to the following vessels:

a) freezer vessel;
b) factory vessel;
c) ice vessels and vessels not out at sea longer than 24 hours; and
d) foreign Flagged vessels intending to land fish in PNG for processing.

Importing countries specific vessel requirements shall also apply where appropriate.

Requirements

10.1. Freezer Vessel and Factory Vessel

10.1.1. Hygiene Condition of Food Contact Surface and Utensils

Design, Construction and Maintenance

10.1.1.1. Vessels must be designed and constructed so as not to cause contamination of the products with bilge-water, sewage, smoke, fuel, oil, grease or other objectionable substances.

10.1.1.2. Surfaces with which fish and fishery products come into contact must be of suitable corrosion-resistant material that is smooth and easy to clean and sanitize. Surface coatings must be durable and non-toxic.

10.1.1.3. Containers, materials and equipment used for working on fish or in contact with the fish and fishery products must be non-toxic, resistant to decay, smooth and easy to clean and disinfect. When used they must be completely clean.

10.1.1.4. Holds and containers used for the storage of fish and fishery products must ensure their preservation under satisfactory conditions of hygiene and, where necessary, ensure that melted water does not remain in contact with the products.

10.1.1.5. Holds must be separated from the engine compartments and from the crew quarters by partitions which are sufficient to prevent any contamination of the stored fish and fishery products.

10.1.1.6. Decks used for fish handling may be constructed of one or more of the following materials, namely surface-coated aluminum, fiberglass, timber coated with an epoxy or similar finish.

10.1.1.7. Hydraulic circuits shall be protected in such a way as to ensure no oil leakage can contaminate fish and fishery products.

Prevention of Cross Contamination from Activities on Vessels

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

10.1.1.9. Containers, equipment and sections of vessel that are directly in contact with the fish and fishery products must be cleaned with potable water or clean seawater after unloading of fish and fishery product.

10.1.1.10. Fishing vessels that use seawater to wash up and process shall do so in uncontaminated waters and whilst the vessel is moving in open waters.

10.1.1.11. All water cisterns or the like shall be routinely cleaned and be free from rust and other sources of contamination.

Cleanliness, Hygiene and Maintenance of Fish Holds

10.1.1.12. Holds or other parts of the vessel where fishery products are stored must:

a) be covered and self-draining;
b) be well insulated;
c) be rust free;
d) have provision for holding an acceptable quantity of ice or have alternative means of refrigeration; and
e) not contain objects or products liable to damage or transmit harmful properties and abnormal characteristics to the food.

10.1.1.13. Fish storage tank's circulation systems and containers must be completely emptied and thoroughly cleaned using potable or clean seawater after each unloading and should only be re-filled with clean water.

10.1.2. Hygiene Condition for Facilities and Equipment in Fish Handling Area

General Condition of Cleanliness

10.1.2.1. Where fish does not normally come into contact with the deck and the timber is clean, sound and well caulked, timber is allowed on exposed decks.

10.1.2.2. The working decks, – equipment, holds, tanks and containers shall be cleaned and disinfected after each time they are used.

10.1.2.3. No substance which could contaminate food may be used or stored in food handling areas or be stored with any product, ingredients or product packaging materials.

Lighting

10.1.2.4. Adequate lighting shall be provided throughout the vessel and light produced shall not distort colours and be shadow free at the inspection surface.

10.1.2.5. The intensity of illumination shall be suitable for activities carried out.

10.1.2.6. Light fittings in areas where product is stored or handled shall be:

a) equipped with a diffuser or other means so that breakage will not contaminate the product; and
b) easy to clean.

Ventilation

10.1.2.7. Adequate ventilation shall be provided to prevent excessive build-up of heat, odours and other contaminants.

Storage and Use of Chemical Compounds

10.1.2.8. Cleaning chemicals, disinfectants, insecticides and all potentially toxic substances shall be stored in a designated locked store or cupboard only for that purpose and handled only by authorised and properly trained persons.

10.1.2.9. Pesticides, cleaning agents or other substances which could represent a hazard to health and food shall be suitably labelled with a warning about their toxicity and use.

10.1.2.10. Extreme care must be taken in the use of chemical compounds on board the vessel to avoid chemicals contaminating food, food contact surfaces and ingredients and must not present any risk of contamination to fish and fishery products.

10.1.2.11. Wet and dry chemicals shall be stored separately to avoid accidental mixing due to leakage or spillage.

10.1.2.12. Materials Safety Data Sheet for all chemical compounds used on board vessel must be kept for verification.

Storage of Non-Fish and Fishery Product Items

10.1.2.13. Separate waterproof storage area shall be provided for the storage of:

a) cartons and/or packaging materials;
b) salt and any other food processing aid(s);
c) ship to shore containers and the like; and
d) food provisions.

10.1.2.14. By-products and non-fish frozen food must be kept physically separated from frozen fish and fishery products.

Waste Management

10.1.2.15. Provision shall be made for the storage of waste and inedible material prior to the removal of waste from the vessel.

10.1.2.16. Waste shall be removed from food handling areas and other facilities where necessary to avoid contamination.

10.1.2.17. Immediately after the disposal of waste, receptacles used for the storage and any equipment which has come into contact with the waste shall be cleaned and sanitised.

10.1.2.18. The waste storage area shall be kept clean.

10.1.2.19. All waste disposal bins shall be with tight-fitting lids where necessary to prevent contamination and avoid pests.

10.1.3. Pest Control

10.1.3.1. There shall be a documented pest control programme.

10.1.3.2. Control and monitoring for the presence of pests shall be carried out regularly.

10.1.3.3. Pest control programmes should include preventing access, eliminating harbourage and infestations and establishing monitoring detection and eradication system.

10.1.3.4. Pest control shall not constitute a hazard to human health and product safety.

10.1.3.5. Accurate and legible records of the location and frequency of pest control measures shall be kept and made available to the competent authority for verification.

10.1.3.6. Where necessary independent third-party pest control on vessel shall be conducted and records maintained.

10.1.3.7. Domestic animals are not permitted onboard vessels.

10.1.4. Water and Ice Control

10.1.4.1. Water used for cleaning fish contact surface(s) and at any stage of handling / processing shall comply with the parameters of potable water, laid down in section 11.2.1 and section 11.3.7 of this Standard. Use of Clean seawater is permitted where acceptable.

10.1.4.2. Ice used to chill fish and fishery products must be made from potable water or clean sea water.

10.1.4.3. When vessels have a water intake for water to be used with fish and fishery products, water inlet and outlet must be situated in positions or locations that avoids contamination of water supply.

10.1.4.4. Clean seawater intakes for vessels shall be located forward of any toilet or bilge discharge.

10.1.5. Specific Requirements for Fish Processing Area on a Factory Vessel

Design, Construction, Maintenance and Hygiene of Fish Processing Area.

10.1.5.1. Factory vessels must have at least:

a) a receiving area reserved for taking fish on board, designed to allow each successive catch to be separated, sorted and or graded. This area must be easy to clean;
b) a hygienic system for conveying fish from the receiving area to the work area;
c) working areas that are large enough for the hygienic preparation and processing of fish and fishery products, and are easy to clean, disinfect, designed and arranged in such a way as to prevent any contamination of the fish and fishery products;
d) storage areas for finished fish and fishery products that are large enough and designed so that they are easy to clean;
e) a place for storing packaging materials that is separate from the product preparation and processing areas;
f) special equipment for disposing waste or fish and fishery products that are unfit for human consumption directly into the sea or, where circumstances so require, into a watertight tank reserved for that purpose;
g) if a waste-processing unit operates on board, a separate hold must be designated for the storage of such waste;
h) a water intake situated in a position that avoids contamination of the water supply; and
i) hand-washing equipment for use by the crew engaged in handling exposed fish and fishery products with taps designed to prevent cross contamination.

10.1.5.2. Section 10.1.5.1 does not apply to factory vessels on board which crustaceans and molluscs are cooked, chilled and wrapped.

10.1.5.3. Factory vessels that freeze fish and fishery products must have equipment meeting the requirements for freezing laid down in section 3.9.2 of this Standard.

10.1.5.4. Maintenance personnel shall take extreme care in the timely removal of all the used scraps once their work is over.

Fish and Fishery Product Handling

10.1.5.5. As soon as fish and fishery products are landed on board, they must be protected from contamination and from the effects of the sun or any other source of heat.

10.1.5.6. When fish and fishery products are washed, water used must be either potable water complying with the parameters set out in section 11.2.1 and section 11.3.7 of this Standard or clean seawater, so as not to impair their safety or wholesomeness.

10.1.5.7. Fish and Fishery products shall be handled and stored in such a way as to prevent bruising. The use of spiked instruments shall be tolerated for the moving of large fish or fish that might injure the handler, provided the flesh of the products is not damaged.

10.1.5.8. Fish and fishery products other than those kept alive must undergo chilling as soon as possible after loading. However, when chilling is not possible, fish and fishery products must be landed as soon as possible.

Evacuation of Fish Offal and Debris

10.1.5.9. Where fish are headed and/or gutted on board, such operations must be carried out hygienically as soon as possible after capture, and the products must be washed immediately and thoroughly with potable water or clean sea water. In that event, the viscera and parts that may constitute a danger to public health must be removed as soon as possible and kept separate from fish and products intended for human consumption.

10.1.5.10. Livers and roes intended for human consumption must be preserved under ice, at a temperature approaching that of melting ice, or be frozen as soon as possible.

10.1.6. Fish Hold Capacity and Time Temperature Controls

Time – Temperature Controls for Histamine Developing Fish

10.1.6.1. Fish which are exposed to air or water temperatures above 28°C shall be placed in ice, or in refrigerated seawater, ice slurry, or brine < 4.4°C, as soon as possible after harvest, or in less than 6 hours from the time of death.

10.1.6.2. Fish which are exposed to air and water temperatures of 28°C or less should be placed in ice, or in refrigerated seawater, ice slurry, or brine of 4.4°C or less, as soon as possible after harvest, but not more than 9 hours from the time of death.

10.1.6.3. Fish that are gilled and gutted before chilling should be placed in ice, or in clean refrigerated seawater, ice slurry, or brine of 4.4°C or less, as soon as possible after harvest, but not more than 12 hours from the time of death.

10.1.6.4. Fish that are harvested under conditions that expose dead fish to harvest waters of 18°C or less for 24 hours or less should be placed in ice, refrigerated seawater, ice slurry or brine of 4.4°C or less, as soon as possible after harvest, with the time period starting when the fish leaves the 18°C or less environment, but not exceeding the time limits stated above.

NOTE: *In the case of Tuna which are unique among fish because they maintain a body temperature several degrees above the temperature of the surrounding sea water this represents a potentiating factor. This internal temperature adds significantly to the heat load, particularly when large catches of skipjack tuna are stored. In addition, large quantities of fish captured in a single fishing set, such as those captured on a purse seiner, or in a longliner where fish may remain dead in the water for considerable time, it may exceed a vessel's ability to rapidly chill the fish. In this regards the fishing vessels shall exhibit evidences and records regarding the preservation of each catch load, in particular of:*

- *i) when did the fish die? If the actual time of death is not known, an estimated time of the first fish death in the set may be used (e.g., in the purse seiner when the brailing exhibits fish which are not alive; or the time the deployment of a longline begins) When was it preserved following the above required conditions?*
- *ii) if the temperature of brine freezing increased to above 4.4ºC when did it recover to below 4.4ºC?*
- *iii) was fish kept during storage and transport to shore-based facilities in required temperature conditions? Did it suffer time –temperature abuse?*

Temperature Control on Ice Vessel

10.1.6.5. Ice for chilling of fishery products must be used in such a way and in such quantities, so that fishery products will attain the temperature of melting ice as quickly as possible.

Time Temperature Control on Refrigerated Seawater (RSW) Vessels

10.1.6.6. Vessels equipped for chilling fish and fishery products in cooled clean seawater, tanks must incorporate devices for achieving a uniform temperature throughout the tanks. Such devices must achieve a chilling rate that ensures that the mix of fish and clean seawater reaches not more than 3ºC within 6 hours after loading and not more than 0 °C after 16 hours and allow the monitoring and, where necessary, recording of temperatures.

10.1.6.7. Tanks must be equipped with adequate seawater filling and drainage installations and must incorporate devices for achieving uniform temperature throughout the tanks.

10.1.6.8. The date and reference number of the tank must be clearly indicated on the temperature records. These must be kept and made available to the competent authority.

10.1.6.9. Chilling shall be carried out in:

a) chiller holds;
b) refrigerated sea water tanks; and
c) other suitable equipment.

Freezing Capacity on Freezer Vessels

10.1.6.10. Freezer vessels must:

a) have freezing equipment with sufficient capacity to lower the temperature rapidly so as to achieve a core temperature of not more than -18ºC;
b) freeze whole fish in brine intended for canning at -9°C or less;
c) have refrigeration equipment with sufficient capacity to maintain fishery products in the storage holds at not more than -18ºC;
d) have storage holds which are equipped with a continuous temperature monitoring and recording device that can be easily read. Such device must be capable of producing records that can be easily retrievable;
e) ensure that the temperature sensor of the reader must be situated in the area where the temperature in the hold is the highest; and
f) meet the requirements for vessels designed and equipped to preserve fish and fishery products for more than 24 hours.

10.1.6.11. Freezing machinery shall be physically separated from the hold in which frozen product is stored.

10.1.6.12. Freezing in brine of whole fish intended for canning, temperature of not more than -9ºC must be achieved for the product.

10.1.6.13. The records of monitoring of temperature during freezing and cold storage shall be available to the competent authority for verification.

Brine Freezing

10.1.6.14. Freezing of purse-seined fish in refrigerated brine on board is acceptable for tuna destined for canning. Freezing of whole fish in brine is permitted at higher temperatures, although not exceeding -9ºC, with the condition that the frozen fish at -9ºC shall only be used for canning process.

10.1.6.15. Brine circulating and refrigeration equipment shall be adequate to freeze the fish at below -9ºC. Subsequently the fish has to be maintained in such medium or go for dry frozen storage at -18ºC.

NOTE: *For effective heat transfer rate of the brine, particular attention shall be given to the speed, flow and temperature of brine over the fish and coils, which will depend on the size of fish, size of load and additional loads immersed at different moments.*

Calibration of Temperature Monitoring Equipment

10.1.6.16. Where appropriate, calibration of temperature monitoring equipment shall comply with requirements in section 4.12 of this Standard.

10.1.7. Hygiene and Training of Crews

Communicable Disease

10.1.7.1. No person who:

a) is suffering from or a carrier of a communicable disease;
b) is suffering from a condition causing a discharge of pus or serum (e.g. weeping sore, infected cuts, boils) from any part of the head, neck, hands or arms; and
c) the operator has reason to suspect there is a chance of transmitting a disease producing organism to the product

shall prepare, pack, or handle any material likely to be used in the processing and manufacturing of the product.

10.1.7.2. Workers suspected of suffering from any of the conditions specified in section 10.1.7 of this Standard shall not be permitted to handle exposed fish until such time they have a medical clearance from a registered medical practitioner indicating that he or she is free from infection unless assigned to duties where there is no risk of contamination to fish.

Protective Clothing

10.1.7.3. All crew working in the processing area shall at all times:

a) wear suitable protective clothing including beard and moustache covers and foot wear; and
b) if the person is wearing gloves-ensure that the gloves are in a sound, clean and sanitary condition.

10.1.7.4. For factory vessels protective clothing shall include, aprons, shirts used as immediate garments, hairnets, gum boots, skinning and cutting knives or similar items and provisions.

10.1.7.5. The protective clothing shall be maintained in good hygienic and condition during use.

Personal Cleanliness and Handwashing

10.1.7.6. Staff assigned to handling of fish and fishery products shall maintain adequate standard of personal hygiene and cleanliness for themselves and all outer clothing.

10.1.7.7. During direct handling of fish and fishery products, unhygienic behaviour that can result in the contamination of such as chewing, eating, spitting, smoking shall be prohibited in product handling areas

Sores and Wounds

10.1.7.8. Sores and wounds must be covered with a clean waterproof dressing that is securely attached and covered with a glove.

10.1.7.9. First aid kit containing impermeable dressings for cuts and sores shall be made available on vessels.

Signs

10.1.7.10. The vessel operator shall display signs advising that smoking, eating, drinking and chewing in fish handling areas are prohibited.

10.1.7.11. Signs and signage texts shall be in English and the local language and/or in picture form.

Training

10.1.7.12. Crews assigned to handle fish on board the vessel shall demonstrate knowledge on minimum food safety requirements.

10.1.7.13. Training shall include reference to relevant parts of this Standard.

10.1.7.14. Training records for each person involved in the operations and processing of fish and fishery products shall be maintained and records of types of training delivered.

10.1.8. Condition of Common Crew Area

10.1.8.1. Sanitary facilities including toilet and shower facilities shall be made available for the normal complement of crew.

10.1.8.2. Any toilet must be equipped with a non-hand operated wash basin located in the toilet room or immediately outside the door.

10.1.9. Additives Control

10.1.9.1. The brine used for chilling and freezing must not be a source of contamination.

10.1.9.2. Salt used for brine must come with a supplier guarantee.

10.1.10. Documented Hygiene Control System

Cleanliness and Sanitation of Facilities and Equipment

10.1.10.1. Where appropriate, requirements for documenting Cleanliness and Sanitation programme on vessel shall comply with requirements in section 12.5.1 of this Standard.

Repair and Maintenance

10.1.10.2. Where appropriate, requirements for documenting Repair and Maintenance programme on vessel shall comply with requirements in section 12.5.10 of this Standard.

Goods Reception

10.1.10.3. Where appropriate, requirements for documenting Goods Reception programme on vessel shall comply with requirements in section 12.5.10 of this Standard.

Parasite Control

10.1.10.4. Where appropriate, requirements for documenting Parasite Control on vessel shall comply with requirements in section 12.5.12 of this Standard.

Traceability and Product Recall

10.1.10.5. Where appropriate, requirements for documenting Traceability and Product Recall programmes on vessel shall comply with requirements in section 12.5.13 of this Standard.

10.2. Requirements for vessels holding fish for less than 24 hrs.

10.2.1. Ice vessels that make a fishing trip of less than 24 hours shall be exempted from all other requirements except the following:

a) should use clean ice made from potable water or clean seawater;
b) should have product contact surfaces that are smooth, impervious, easy to clean and in good condition and repair;
c) shall use potable water or clean sea water for ice making, where applicable;
d) shall employ minimum personal hygiene requirements;
e) shall maintain storage containers in good repair and clean condition;
f) shall have a suitable method of providing potable water or clean seawater to the handling areas;
g) shall store oil and fuel, if applicable separately from fish and fishery products and food contact surfaces; and
h) such vessel shall be listed as approved suppliers by shore based operator receiving fish from them.

SECTION 11: MICROBIOLOGICAL, CHEMICAL AND PHYSICAL CRITERIA FOR FISH AND FISHERY PRODUCTS AND WATER TESTING

Application

The section shall be applied to all shore-based operators and freezer and factory vessels and set out requirements for microbiological, chemical and physical testing criteria of fish and fishery products at any point in the food chain from primary production to final consumption.

This requirement also applies to water that is utilized in the production of fish and fishery product(s) by the Licensed Operators.

Requirements

11.1. General Requirements

11.1.1. Use of Accredited Laboratories for Chemical and Microbial Testing

11.1.1.1. All third-party verification samples for fish and fishery product shall be tested from approved accredited laboratories that operate in accordance with EN ISO/IEC 17025.

11.1.2. Raw Materials

11.1.2.1. The operator of an establishment shall:

a) not accept or use raw materials which have biological, chemical or physical hazards;
b) prepare product from raw materials that are taken from unpolluted waters, sound, in normal condition and in accordance with this Standard; and
c) harvest fish species in accordance with requirements for harvest and capture in section 2 of this Standard.

11.1.3. Product and Water Testing

11.1.3.1. Both industry and NFA are required to conduct independent testing of product and water to demonstrate compliance with the standards given below.

11.1.3.2. Where water supply is provided by an independent supplier, confirmation of microbiological and chemical requirements can be confirmed by accessing test results from the supplier.

11.1.3.3. In the absence of supplier test results an operator shall test for microbiological and chemical tests as per the operator's pre-requisite and support programme.

11.1.3.4. Water shall be sampled from each facility by an authorized officer and examined by an accredited laboratory to ensure that the parameters stated in section 11.2.1 and section 11.3.7 of this Standard are met.

11.1.4. Quality Checks on the Finished Product

11.1.4.1. At least 5 units should be sampled from each production batch at the end of processing, with the objective of undertaking an organoleptic evaluation of the final product, to include texture, flavour, appearance, smell, and absence from other defects.

11.1.4.2. Any extraneous material should be assessed by washing the product in suitable sieves, and the nature of such material determined by microscopic examination.

11.1.5. Quality Checks on the Finished Product (canned product)

11.1.5.1. At least 18 units should be sampled from each production batch at the end of processing, with the objective of evaluating key quality and safety parameters

11.1.5.2. The internal pressure of the cans in the sample should be measured with a vacuum gauge.

11.1.5.3. An organoleptic evaluation of the contents of the sampled cans should be undertaken, to include texture, flavour, appearance, smell, presence of scales, hard bones etc.

11.1.5.4. Any extraneous material should be separated by washing the can contents in suitable sieves, and the nature of such material determined by microscopic examination.

11.1.5.5. Tomato sauces should be evaluated for consistency, colour, smell, flavour, sugar content and acidity.

11.1.5.6. The same parameters, with the exception of sugar content, should be evaluated in oils and brine used as covering liquids.

11.1.6. Water Analysis

11.1.6.1. The quality of the water which is used in the plant should be tested on a daily basis according to the type of treatment received. Samples should be taken at the point of use and the relevant parameters analyzed for compliance.

11.1.6.2. If chlorine is used the following parameters should be tested in accordance with the chlorine test kits covering:

a) organoleptic quality;
b) free chlorine and combined chlorine residuals; and
c) pH.

11.1.6.3. If water from different sources are used in the same plant, the tests should be repeated for each source and if bore water source is used, appropriate physio-chemical parameters are to be analysed.

NOTE: *It is recommended that at least once every month, water samples from each source should be submitted for a microbiological analysis, to give feedback on the effectiveness of the treatment applied to the water supply.*

11.1.7. Data Storage

11.1.7.1. All the results of the analysis and tests mentioned in this section shall be recorded on specially designed forms.

11.1.7.2. All the completed forms containing data which applies to each production batch code shall be stored in a permanent filing system.

11.1.7.3. Quality control forms shall be stored for at least three years after the date of production.

11.1.7.4. Quality control forms shall be made available to authorized inspectors during their inspections of the facility.

11.2. Microbiological Criteria

11.2.1. Microbial Parameters for Water

11.2.1.1. Where appropriate, operators shall ensure that water used in the processing as ingredients and or for cleaning and sanitizing of equipment and utensils shall comply with microbiological limits in Table 1 in this Standard.

Table 1.0: Microbiological criteria for Water Using in Processing of Fish and Fishery Product

Parameter	**Limits**
E.Coli	0 per 100mL
Enterococci	0 per 100mL
Total Coliform	0 per 100ml
Total Plate Count (TPC) at 35oC	No abnormal change

Source: EU Regulation 98/83.

11.2.2. Microbial Parameters for Product

11.2.2.1. All microbial criteria for specific product type(s) shall be referred to in Annexures where applicable or meet importing country requirements.

11.3. Chemical Criteria

11.3.1. Ingredients and Additives

11.3.1.1. All ingredients and additives added to fish and fishery products shall be prepared so as not to present a risk to consumers and shall:

a) not exceed the limits specified in the most updated Codex "General Standards for Food Additives"; and
b) meet the importing countries requirements; such as supplier's guarantee and certificate of analysis.

11.3.2. Residues of Toxic Heavy Metals, Pesticides, Drugs and other Chemical Contaminants

11.3.2.1. All residues (pesticides, antibiotics or others and metals where applicable shall not exceed the limits as specified by:

a) Codex Pesticides Residues in Food Online Database;
b) WHO "Guidelines for Drinking Water Standards" Fourth Edition for potable water; and
c) Importing country requirements.

11.3.2.2. Operators are required to meet the requirements under Table 2.0 where applicable in this Standard.

Table 2.0: Product Chemical Testing Criteria

Test	**Permitted limits**	**Level of Detection and Level of Quantification**
Lead	0.3 ppm fish and cephalopods 0.5 ppm crustaceans 1.5 ppm bivalve molluscs	LOD less than a tenth of the permissible limit LOQ less than one fifth of the permissible level
Cadmium	0.1 ppm tunas and mackerel 0.25 ppm swordfish 0.05 ppm all other finfish 0.5 ppm crustaceans 1.0 ppm cephalopods 1.0 ppm Bivalve molluscan shellfish	LOD less than a tenth of the permissible limit LOQ less than one fifth of the permissible level
Mercury	1.0 ppm tuna and swordfish 0.5 ppm other species	LOD less than a tenth of the permissible limit LOQ less than one fifth of the permissible level
Inorganic Tin (ONLY FOR CANNED PRODUCT)	200 ppm canned tuna	LOD less than 5 mg/kg LOQ less than 10 mg/kg
Dioxins and PCBs	Fish: Sum of Dioxins: 3.5 pg/g wet weight max. Sum of Dioxins and Dioxin-like PCBs: 6.5 pg/g wet weight Sum of PCB 28/52/101/138/153/180: 75 ng/g wet weight max Fish Oils: Sum of Dioxins: 1.75 pg/g wet weight max. Sum of Dioxins and Dioxin-like PCBs: 6.0 pg/g wet weight Sum of PCB 28/52/101/138/153/180: 200 ng/g wet weight max	Not specified
Benzo(a) pyrene (ONLY FOR SMOKED FISH PRODUCTS)	2.0 ug/kg smoked fish benzo(a)pyrene and 12.0 ug/kg sum of benzo(a)pyrene/ benz (a) anthracene/Benzo (b) fluoranthene and chrysene	LOD less than 0.3 ug/kg LOQ less than 0.9 ug/kg
Histamine	No more than 2 samples with results between and 100 ppm and no results over 200 ppm	HPLC/ Flurometric

11.3.3. Histamine

11.3.3.1. Histamine levels of acceptable and allowable levels as prescribed in the table below shall be used by all parties in assessing the quality and safety of fish and fishery products.

Table 3.0: Acceptance Criteria for Histamine

Test	Sampling Plan		Limits	
	n	c	m	M
Histamine	9	2	100ppm	200ppm

11.3.3.2. Interpretation of Test Criteria
n= number of units comprising the sample which must be examined to satisfy the requirements of this plan
c= number of sample units giving values between m and M
m= represents a value at or below which is considered acceptable
M= represents a maximum acceptable value. Value above this is considered unacceptable and one sample value above this value is cause for lot rejection.

11.3.3.3. Histamine result interpretation:

a) satisfactory if the following requirements are fulfilled;
   i) the mean value observed is <= m or >m but <=M in case of 2 samples out of 9;
   ii) a maximum of c/n values observed are between m and M; and
   iii) no value observed exceed the limit M.

b) Unsatisfactory if the results are as follows:
   i) The mean value observed exceed M;
   ii) c/n values between m and M are more than 2; and
   iii) one or more of the values observed are > M.

11.3.3.4. Importing country requirements apply.

11.3.4. Colors

11.3.4.1. The following colours are permitted for the purpose of restoring natural colour lost in processing and must not be used to deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

Table 4.0: Colours

E Number	Colour	Maximum Level (mg/kg)
100	Curcumin or Turmeric	5.0
160a	Beta-carotene	25.0
160b	Annatto extracts	10.0 kg (calculated as total bixin or norbixin)

11.3.5. Flavours Criteria

11.3.5.1. Natural flavours and their identical synthetic equivalents and other synthetic flavours are permitted except those which are known to represent a toxic hazard.

11.3.6. Antioxidants Criteria

Where appropriate, operators are required to meet requirements for antioxidants on Table 5 in this Standard.

Table 5.0: Antioxidants and Maximum Permissible Levels

E Number	Antioxidant Name	Maximum Level
304	Ascorbyl palmitate	500 mg/kg individually or in combination
305	Ascorbyl stearate	500 mg/kg individually or in combination
306	Mixed tocopherols concentrate	GMP
307	Alpha-tocopherol	GMP
308	Synthetic gamma-tocopherol	GMP
309	Synthetic delta-tocopherol	GMP
310	Propyl gallate	100 mg/kg
319	Tertiary butyl hydroquinone (TBHQ)	120 mg/kg
320	Butylated hydroxyanisole (BHA)	175 mg/kg
321	Butylated hydroxytoluene (BHT)	75 mg/kg
-	Any combination of gallates, BHA and BHT and/or TBHQ	200 mg/kg but limits above not to be exceeded
389	Dilauryl thiodipropionate	/kg

11.3.7. Chemical Parameters for Water

Operators are required to meet the requirements under Table 6.0 where applicable in this Standard.

Table 6.0: Water Chemical Testing Parameters

Parameters	Parametric Value	Units	Notes
Acrylamide	0.10	µg/l	
Antimony	5.0	µg/l	
Arsenic	10	µg/l	
Benzene	1.0	µg/l	
Benzo(a)pyrene	0.010	µg/l	
Boron	1.0	mg/l	
Bromate	10	µg/l	
Cadmium	5.0	µg/l	
Chromium	50	µg/l	
Copper	2.0	mg/l	
Cyanide	50	µg/l	
1,2-dichloroethane	3.0	µg/l	
Epichlorohydrin	0.10	µg/l	
Fluoride	1.5	mg/l	
Lead	10	µg/l	
Mercury	1.0	µg/l	
Nickel	20	µg/l	
Nitrate	50	mg/l	
Nitrite	0.50	mg/l	
Pesticides	0.10	µg/l	Notes 1 and 2
Pesticides -total	0.50	µg/l	Notes 1 and 3
Polycyclic aromatic hydrocarbons	0.10	µg/l	Sum of concentrations of Note 4
Selenium	10	µg/l	
Tetrachloroethene and Trichloroethene	10	µg/l	Sum of concentrations of specified parameters
Trihalomethanes — Total	100	µg/l	Sum of concentrations of specified compounds; Note 5
Vinyl chloride	0.50	µg/l	
Chloride (as Cl)	250	mg/l	
Manganese	50	ug/l	
Sulphate	250	mg/l	
Sodium	200	mg/l	
Ammonium	<0.5	ppm	
Colour	Typical		
Conductivity	2500	Us cm^{-1}	
pH	6.5 to 9.5		
Odour	Typical		
Taste	Typical		
Turbidity	<5	NTU	
Aluminium	200	ug/l	

Source: Council Directive 98/83/EC of 3 November 1998 on the Quality of Water Intended for Human Consumption

Note 1: 'Pesticides' means:
— organic insecticides,
— organic herbicides,
— organic fungicides,
— organic nematocides,
— organic acaricides,
— organic algicides,
— organic rodenticides
— organic slimicides,
— related products (*inter alia*, growth regulators)
and their relevant metabolites, degradation and reaction products.
Only those pesticides which are likely to be present in a given supply need be monitored.

Note 2: The parametric value applies to each individual pesticide. In the case of aldrin, dieldrin, heptachlor and heptachlor epoxide the parametric value is 0.030 µg/l.

Note 3: 'Pesticides — Total' means the sum of all individual pesticides detected and quantified in the monitoring procedure.

Note 4: The specified compounds are:

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

Note 5: Where possible, without compromising disinfection, a lower value should be attained. The specified compounds are: chloroform, bromoform, dibromochloromethane, bromodichloromethane.

11.4. Physical Criteria

11.4.1. Sensory and Organoleptic Criteria

11.4.1.1. Random organoleptic checks must be carried out at all stages of production, processing and distribution according to the specified criteria in this section of this Standard.

11.4.1.2. Importing country requirements for organoleptic evaluation must be met.

Table 7.0: Chilled Fish

Presentation	**Feature**	**Criteria and Description**
Raw whole, gutted or ungutted	Outer surface,	• Colour: bright, dull, bleached • Slime: colourless, discoloured
	Skin	• Damage: none, punctures, abrasions
	Eyes	• Shape: convex, flat, concave • Brightness: clear, cloudy • Colour: normal, discoloured
	Belly cavity	• Guts (in intact fish): intact, digested • Cleanliness (in gutted fish): completely gutted and cleaned, incompletely gutted, not washed • Belly walls: bright, clean, discoloured, • Digested parasites: absent, present • Blood: bright, red, brown
	Texture, appearance of gills	• Skin: smooth, gritty, flesh, firm, soft • Colour: bright red or pink, beached, discoloured • Mucus: clear, opaque, discoloured
	odour of gills	• Fresh, characteristic, neutral, slightly sour, slightly stale, definite spoilage, putrid
Raw fillets	Appearance	• Translucent, glossy, natural colour, opaque, dull, blood-stained, discoloured
	Parasites	• Presence or absence
	Texture	• Firm, elastic, soft, plastic
	Odour	• Marine, fresh, neutral, sour, stale, spoiled, putrid
Cooked fillets	Odour	• Spoilage: marine, fresh, neutral, musty, sour, spoiled • Taints: absent, disinfectant, fuel oil, chemicals, sulphides
	Flavor	• Spoilage: sweet, creamy, fresh oil, neutral, sour, oxidised, putrid, musty, fermented, rancid, bitter, • Taints: absent, disinfectant, fuel oil, very bitter, alkaline, polyphosphates, chemicals
	Texture	• Succulent, firm, soft, pasty, gelatinous, dry
	Parasites	• Presence or absence

Source: FAO Draft Guideline for Sensory Evaluation of Fish and Shellfish in Laboratories.

Table 8.0: Fish Frozen

Presentation	Feature	Criteria and Description
Frozen	Appearance	• Freezer burn: absent, slight, superficial, extensive, deep • Colour: normal, yellow to bronze discolouration in fatty fish
Thawed fillets, raw	-	• Texture: Firm, elastic, flexible, very firm, hard, stiff drip: slight, moderate, abundant • Odour spoilage and taints: as for chilled fish Cold storage: absence of cold storage odours, sharp, cardboardy, rancid
Thawed fillets	Odour and Flavour	• Spoilage and taints: as per chilled fish • Cold storage: absence of cold storage odours, sharp, cardboardy, rancid
	-	• Texture: firm, succulent, though, fibrous, dry

Source: FAO draft guideline for Sensory Evaluation of Fish and Shellfish in laboratories.

Table 9.0: Crustacean Shellfish – Chilled

Presentation	Feature	Criteria and Description
Raw	Appearance, shell on	• bright colours, slight blackening on the head, blackening on head and body
	Appearance, peeled meats	• translucent, overall white or light grey, slight black discolouration, extensive black discolouration, very translucent, slimy, yellowish discolouration on butt end of tail meat taken from head-on products
	Odour	• fresh, marine, musty, ammoniacal, sour, spoiled, putrid
Cooked meats	Appearance	• white, opaque, black spots, extensive back discolouration, slightly translucent
	Odour	• fresh, boiled milk, musty, ammoniacal, rancid, sour, spoiled
	Flavour	• sweet, creamy, neutral, musty, sour, bitter, spoiled
	Texture	• firm, elastic, soft, mushy

Source: FAO draft guideline for Sensory Evaluation of Fish and Shellfish in laboratories.

Table 10.0: Crustacean Shellfish - Frozen

Criteria specific to the grading of frozen shellfish, and their descriptions, are essentially the same as those applied to the grading of frozen vertebrate fish.

Table 11.0: Cephalopods - Fresh or Refrigerated

Presentation	Feature	Criteria and Description
Fresh or refrigerated	Colour	• Skin: bright, dull, bleached • Meat: pearly white, lime coloured, pinkish or light yellow
	Adherence	• Adherent to the meat, easily separating from the meat
	Texture	• Meat: very firm, firm, slightly soft • Tentacles: resistant to tearing off, can be torn off easily
	Odour	• Fresh, seaweed, slight or no odour, sour

Source: FAO Draft Guideline for Sensory Evaluation of Fish and Shellfish in Laboratories.

11.4.2. Parasite Criteria

11.4.2.1. Licenced operators placing on the market the following fishery products derived from cephalopod molluscs:

a) fishery products intended to be consumed raw; or
b) marinated, salted and any other treated fishery products, if the treatment is insufficient to kill the viable parasite

must ensure that the raw material or finished product undergo a freezing treatment in order to kill viable parasites that may be a risk to the health of the consumer.

11.4.2.2. For parasites other than trematodes, the freezing treatment must consist of lowering the temperature in all parts of the product to at least:
a) -20 °C for not less than 24 hours; or
b) -35 °C for not less than 15 hours.

11.4.2.3. Licenced operators need not carry out the freezing treatment set out in section 11.4.2.2 in this Standard for fishery products:
a) that have undergone, or are intended to undergo before consumption a heat treatment that kills the viable parasite. In the case of parasites other than trematodes the product is heated to a core temperature of 60 °C or more for at least one minute;
b) that have been preserved as frozen fishery products for a sufficiently long period to kill the viable parasites;
c) from wild catches, provided that;
   i) there are epidemiological data available indicating that the fishing grounds of origin do not present a health hazard with regard to the presence of parasites,
   ii) the competent authority so authorises, and

d) derived from fish farming, cultured from embryos and have been fed exclusively on a diet that cannot contain viable parasites that present a health hazard, and one of the following requirements is complied with;
   i) have been exclusively reared in an environment that is free from viable parasites, or
   ii) the licensed operator verifies through procedures, approved by the competent authority, that the fishery products do not represent a health hazard with regard to the presence of viable parasites.

11.4.2.4. When placing on the market, except when supplied to the final consumer, fishery products referred to in section 11.4.2.2 in this Standard must be accompanied by a document issued by the licensed operator performing the freezing treatment, stating the type of freezing treatment that the products have undergone.

11.4.2.5. Before placing on the market fishery products referred to in section 11.4.2.3.(c) and section 11.4.2.3.(d) in this Standard which have not undergone the freezing treatment or which are not intended to undergo before consumption a treatment that kills viable parasites that present a health hazard, a licensed operator must ensure that the fishery products originate from a fishing ground or fish farm which complies with the specific conditions referred to in one of those points. This provision may be met by information in the commercial document or by any other information accompanying the fishery products.

11.4.3. Live Fish Criteria

11.4.3.1. Suitable packaging shall be used for live fish to keep the fish, alive, free from injury and in good condition and shall where applicable meet the requirements of 3.10 of this Standard.

Table 12.0: Final Product - Live Fish

Style	**Parameters**	*Acceptance Criteria*
All	Ailing, dead fish	Not more than 2% mortality rate
All	Parasites*	Nil
All	Damaged fish	practically free
All	Diseased fish	Nil
Crabs	2 claws missing	Nil
	1 claw missing	1% by number
Lobster	more than 2 legs and one antennae missing	Nil

* Only applicable for raw-eating product

11.4.4. Hermetically Sealed Containers Criteria

Table 13.0: Final Product - Canned Fish [1]

Defect/Parameters	**Tolerance/ Acceptance Criteria**
Can body hook	meet the can manufacturer's specification
Can overlap	meet the can manufacturer's specification
Cover hooks	meet the can manufacturer's specification
Countersink	meet the can manufacturer's specification
Can failure which includes:	-
• Perforated external corrosion	Nil
• Severe body denting (plate fracture with leakage evident)	Nil
• Severe double seam denting (fracture evident)	Nil
• Defective or Incomplete side seam weld (wild burn through)	Nil
• Incomplete open side seam weld (leakage evident)	Nil
• Mislocked side seam	Nil
• Body puncture	Nil
• Hard swell or buckle swell or blown	Nil
• Cable-cut (end plate cut through, leakage evident)	Nil
• Sharp embossed code (end plate fracture)	Nil
• Dead head or skidder	Nil
• Incomplete double seam (2nd operation incomplete)	Nil
• Cut over or cut through (Plate fracture)	Nil
• Torn flange or back curl	Nil
• Knocked down curl or flange	Nil
• Score line fracture	Nil
Commercial Sterility	F_o minimum = 3.0
pH	4.6-7.0

11.5. Packaging and Labelling

11.5.1. General

11.5.1.1. Labels, tags and adhesives used in packaging shall comply with the requirements specified in section 4.1.7.4 of this Standard.

11.5.2. Packaging

11.5.2.1. The nature of packaging and the materials used for packaging shall not:

a) introduce to the food any undesirable physical, biochemical or microbiological hazards and or cause product deterioration;
b) impart a taint to the food; or
c) contaminate the food.

11.5.2.2. Food contact packaging used for packing canned and pouched fish and fishery products shall meet the requirements of Code of Federal Regulation Title 21 Parts 170 – 199 as relevant.

11.5.2.3. Packaging shall ensure the integrity and safety of the product through distribution to the market place.

11.5.2.4. The ink used to apply descriptive markings shall not transfer on to the food.

11.5.2.5. Fluorescent brighteners or carcinogens, mutagens and teratogens shall not be applied to food or packaging.

11.5.2.6. Internal lacquers applied to the inner surfaces shall:

a) cover the inner surface in a continuous film;
b) be uniform in thickness;
c) leave no area of the surface uncoated;
d) firmly adhere to the covering; and
e) be compatible and non-toxic with the food being packed.

[1] Or alternative tests as recommended by the can manufacturer or equipment being used e.g. can scope

11.5.3. Labelling

11.5.3.1. Labelling of all exported fish and fishery products shall be accurate and in accordance to the Codex "General Standard for the Labelling of Pre-Packaged Food" as well as importing country requirements. As a minimum the following information shall be contained on a finished product label:

a) common and scientific name of fish or fish product;
b) country of origin;
c) name of manufacturer and or distributor;
d) date of manufacture, production or processing;
e) date of expiry;
f) instruction on storage conditions;
g) type of processing or preparation or specific treatment it has undergone;
h) the net weight of fish or fish product (g/kg);
i) percentage glazing if applicable;
j) the ingredients if applicable;
k) the name and code of food additives, if applicable;
l) type of packing (normal, vacuum or modified atmosphere packing);
m) code number, lot number or batch number of the product;
n) all labelling shall be in English and can be easily read and understood;
o) list of nutritional value; and
p) allergen and GMO declaration

11.5.3.2. The name and address of either the producer, packer, distributor or exporter of the fish shall be declared on the exterior of the box, along with the approval number of the establishment in which the product was processed.

11.5.3.3. Every outer wrapper shall possess a label indicating the net weight of the contents, the species or popular name, the product form, whether the fish is fresh or frozen, the country of origin and any additives used in the process.

11.5.3.4. A batch number shall be indicated on every pack and on every master carton. This shall be marked in clear indelible characters, and may be either in code or otherwise. The number should contain sufficient information to identify:

a) the establishment;
b) the date of production;
c) the production shift; and
d) a "best before" date

NOTE: *Batch code example: DWWYPXXSSF*
D - Day of week;
WW - Week number;
Y – Year;
P - Production shift;
XX - Supplier code;
SS - Species code; and
F - Fishing day No.

11.5.3.5. For frozen products, date of production refers to the date of harvesting or catching, until the stage at which a fish and fishery products is labelled or used for further processing, the operator must ensure the following information is made available:

a) the date of production; and
b) the date of freezing, if different from the date of production;

SECTION 12: FOOD SAFETY MANAGEMENT SYSTEMS

Application

This section shall be applied to Licensed Operators and set out requirements for documented food safety management system established by the Operators. Where appropriate this section also shall be applied to systems established by Low Technology Operator(s).

The requirements under this section should be applied in conjunction with Official NFA desktop assessment of the Food Safety Management System (FSMS) established by operators. The assessment should cover:

a) HACCP Based Procedures; and
b) Pre-requisite and Support Programmes and other integrated programmes (GMP, SSOP, and GAP)

Requirements

12.1. General Requirements

12.1.1. All licensed operators shall document, maintain and implement food safety management policies relating but not limited to capture, harvest, transportation, landing, processing, storage and dispatch.

12.1.2. All operators of facilities including fishing vessels shall communicate their food safety management policies to all personnel involved in the handling and processing of fish and fishery products.

12.2. Approval of the food safety management system (FSMS)

12.2.1. The Managing Director shall give a written approval of the FSMS.

12.2.2. The approval of the Food Safety Management System for Facility shall be valid for 12 months period subject to satisfactory audit.

12.2.3. All documents required by the HACCP programme, including amendments, shall be approved by the Managing Director.

12.3. Food Safety Assurance

12.3.1. Where appropriate, operators shall ensure that a quality control system for food safety assurance shall be employed based on the principles of the Hazard Analysis and Critical Control Point Concept. The HACCP methodology is described under section 12.4 of this standard.

12.3.2. The system in section 12.3.1 in this Standard should integrate, at the minimum, the following components:

a) Water Analysis;
b) Raw Material Control;
c) Process Control;
d) Quality Checks on Finished Product; and
e) Data Storage.

12.3.3. Quality control staff shall regularly observe the processing of the fish in order to ensure that the requirements of these guidelines are complied with, particularly those related with processing parameters.

12.3.4. Quality control staff shall ensure that fish does not remain exposed on the tables during stoppages in the process.

12.3.5. Quality control staff shall ensure the traceability of the control records of the processing parameters, as well as other controls (raw materials, sanitary and temperature related controls), so that these are identifiable for each batch or lot reference.

12.3.6. Quality control staff shall ensure that the correct lot code is applied to the finished product.

12.4. Establishing HACCP Based Programme

All licensed operators including freezer vessels shall put in place, implement and maintain a permanent procedure(s) based on the HACCP principles.

12.4.1. Facilities and Process Description

12.4.1.1. The description shall contain:

a) name of company, location, address and postal address of the Licensed Facility;
b) name of owner of the licensed facility;
c) facility license number;
d) a company food safety policy (a statement from management assuring the safety of their product and process);

e) the operation(s) and their scope of which approval is sought (where does the operation start and finish? At what points does the owner take on and relinquish responsibility for the product? Is HACCP plan restricted to only food safety or does it include quality aspects as defined by finished product specifications?
f) name and signature of the manager responsible for the HACCP programme;
g) names of HACCP team, CV, training undertaken and responsibilities;
h) a list of all quality manuals and other references used; and
i) a declaration signed and dated by the owner, or on behalf of the owner of the licensed facility, that she or he will comply with the HACCP programme of this standard.

12.4.2. Product Description

12.4.2.1. Licensed operators shall draw up a full description of the product including but not limited to the following relevant safety information:
a) name of product;
b) composition (raw materials, ingredients, additives etc);
c) physical/chemical structure (including Aw, pH, etc.);
d) method of preparation and preservation (heat-treatment, freezing, brining, smoking, etc.);
e) packaging;
f) shelf life;
g) storage conditions; and
h) method of distribution.

12.4.2.2. Where the operator has multiple products, the operator may group products with similar characteristics or processing steps for the purpose of development of the HACCP plan.

12.4.3. End Users or Consumers

12.4.3.1. Licensed operators shall define the normal or expected use of the product by the customer and the consumer target groups for which the product is intended.

12.4.3.2. In specific cases, vulnerable groups of the population may be affected by consuming the product, the operator shall specify these group.

12.4.4. Construction and On-site Confirmation of Flow Diagram

12.4.4.1. Licensed operators shall ensure that the flow diagram should be constructed by the HACCP team.

12.4.4.2. The licensed operators shall ensure that the flow diagram covers all steps in the operation for a specific product. The same flow diagram may be used for a number of products that are manufactured using similar processing steps.

12.4.4.3. Licensed operators shall ensure that steps are taken to confirm the processing operation against the flow diagram during all stages and hours of operation and amend the flow diagram where appropriate.

12.4.4.4. The confirmation of the flow diagram should be performed by a person or persons with sufficient knowledge of the processing operation.

12.4.5. Principle 1: Hazard Identification and Analysis

12.4.5.1. Licensed operators shall ensure that the HACCP team identify and list all of the hazards that may be reasonably expected to occur at each step of the process flow according to the scope from primary production, processing, manufacture and distribution until the point of consumption.

12.4.5.2. Licensed operators shall ensure that following section 12.4.5.1 in this Standard, the HACCP team shall conduct systematically a scientifically based hazard analysis for each processing step to determine the significant hazard using a systematic risk evaluation methodology which assesses the likely occurrence of hazards and severity of their adverse health effects.

12.4.5.3. Tools used for risk assessment to determine the significance of a hazard shall be provided as and when required for verification.

NOTE: *Recommended tool relevant to application of this requirement is outlined in ANNEX C of this Standard.*

12.4.5.4. Licensed operators shall ensure that in conducting the hazard analysis, the risk evaluation methodology wherever possible, the following should be included:
a) the likely occurrence of hazards and severity of their adverse health effects;

b) the qualitative and/or quantitative evaluation of the presence of hazards;
c) survival or multiplication of micro-organisms of concern;
d) production or persistence in foods of toxins, chemicals or physical agents; and
e) conditions leading to the above.

12.4.5.5. Where hazard is determined through risk justification as significant, preventative control measures must be applied to each hazard. The preventative measure must be effective to control the hazard and is relevant and consistent with the justification.

12.4.6. Principle 2: Determination of CCP

12.4.6.1. Licensed operators shall ensure a logical decision approach is used to identify the critical control points at the step or steps at which control is essential to prevent or eliminate a hazard or to reduce it to acceptable levels;

NOTE: *Recommended tool for CCP Determination outlined in ANNEX C of this Standard.*

12.4.7. Principle 3: Establishment of Critical Limits

12.4.7.1. Where the licensed operator identifies a step to be a CCP, the operator shall establish critical limits at critical control points which separate acceptability from unacceptability for the prevention, elimination or reduction of identified hazards. Control measures and Critical limits shall be validated.

12.4.7.2. Where HACCP guidance developed by experts are used to establish the critical limits, the operator should ensure that these limits fully apply to the specific operation, product or groups of products under consideration.

12.4.7.3. Licensed operators shall ensure that these critical limits are measurable and consistent with the preventative measures in section 12.4.5.5 of this Standard.

12.4.8. Principle 4: Establishing Monitoring Procedures for Each CCP

12.4.8.1. Licensed operators shall establish and implement relevant and effective monitoring procedures at each critical control point.

12.4.9. Principle 5: Establishing Corrective Actions

12.4.9.1. Licensed operators shall establish and implement effective and relevant corrective actions when monitoring indicates that a critical control point is not under control, when a deviation of the Critical Limits occurs.

12.4.10. Principle 6: Establishing Verification Procedures

12.4.10.1. Licensed operators shall establish and implement procedures, which shall be carried out regularly, to verify that the measures outlined in section 12.4.7 to section 12.4.9 of this Standard are working effectively.

NOTE: *These will consist primarily of effectiveness checks of the controls and the presence of the concerned hazards and of the monitoring of the CCP in respect to the respective food safety objectives.*

12.4.10.2. Licensed operators shall ensure that periodic activity to demonstrate that the desired CCP or HACCP Plan outcome has indeed been reached.

NOTE: *Example: sampling and testing of the food to evaluate the presence of the targeted hazard below the acceptable threshold by storage at a certain temperature.*

12.4.10.3. Methods for verification may include in particular:
a) random sampling and analysis;
b) reinforced analysis or tests at selected critical points;
c) intensified analysis of intermediate or end products;
d) surveys on actual condition during storage; and
e) distribution and sale and on actual use of the product.

12.4.11. Principle 7: Documentation and Records

12.4.11.1. Licensed operators shall establish documents and records commensurate with the nature and size of the food business to demonstrate the effective application of the measures outlined under section 12.4.7 to section 12.4.9 of this Standard.

12.4.12. Changes and Modifications and Revision

12.4.12.1. When any modification is made in the product, process, or any step, food business operators shall review the procedure and make the necessary changes to it and notify NFA for approval.

12.5. Establishing Pre-requisite and Support Programmes

12.5.1. Cleaning and Sanitation Programme

12.5.1.1. Documented cleaning and sanitation programme shall be in place at each licensed facility and all cleaning personnel shall be suitably trained in cleaning and sanitising techniques.

12.5.1.2. The programme shall cover the cleaning and sanitising of fish premises, including product areas, food contact surfaces, appliances, support areas, stores and not limited to these only.

12.5.1.3. The programme shall contain the following elements:

a) areas/appliances to be cleaned;
b) detergents/sanitizers that are to be used and dosages
c) frequency of cleaning;
d) procedures and work instructions for the various cleaning and sanitising operations;
e) monitoring/checks of the cleaning;
f) recording of cleaning procedures;
g) personnel responsible;
h) training records of all trained; and
i) other suitable information to make verification and records easier.

12.5.1.4. All cleaning and sanitising procedures shall be monitored and records maintained.

12.5.1.5. Verification procedures shall be documented to verify effectiveness of cleaning and sanitation.

12.5.2. Pest and Vermin Control Programme

12.5.2.1. A Pest control Schedule shall adopt a clear structure with identification and description of the relevant actions and parameters, to include:

a) action limits;
b) monitoring procedure (following the "What, How, When, Who" approach);
c) verification;
d) corrective actions; and
e) recording

12.5.2.2. Pest control programmes should include preventing access, eliminating harbourage and infestations and establishing monitoring detection and eradication system.

12.5.2.3. Verification procedures shall be documented to verify effectiveness of the controls in place.

12.5.3. Staff Training and Hygiene Programme

12.5.3.1. The training needs for each category of work force shall be assessed and scheduled for each year, which shall include but limited to:

a) personal hygiene;
b) good hygiene practices;
c) infectious and communicable diseases;
d) cleaning and disinfection procedures;
e) product handling and protection; and
f) the FSMS system and process control.

12.5.3.2. Training programmes shall include references to relevant parts of this Standard and the requirements of importing countries.

12.5.3.3. Verification procedures shall be documented to verify effectiveness and competency of such training.

12.5.4. Water and Ice Control Programme

12.5.4.1. Documented water safety programme shall have the following requirements in place:

a) clearly identify the source of water supply and the distribution diagram including storage facilities;
b) cleaning programme for maintaining the cleanliness and hygiene condition of water storage and holding facilities;
c) water sampling points for laboratory testing shall be clearly identified on the distribution diagram;
d) planned sequence of corrective actions shall be documented in case of water systems failing to meet the requirements specified in this Standard;

e) water quality parameters specified in the programme shall meet the requirements specified in section 11.2.1 and section 11.3.7 of this Standard and the importing country's requirements; and
f) verification procedures shall be documented to verify safety of water

12.5.5. Raw Material Reception Programme

12.5.5.1. Documented raw material reception control programme shall have the following requirements but not limited to:
a) acceptance criteria and specification for accepting raw materials. Such raw materials include fish, packaging material, ingredients, processing aid(s) and any material used for processing of fish and fishery products;
b) organoleptic evaluation;
c) time temperature control from harvesting to receiving of the fish; and
d) planned corrective action on raw materials failing to meet the acceptance criteria.

12.5.6. Control During Processing / Process Control Programme

12.5.6.1. Documented procedures on the controls during all stages of processing must consider the following requirements but not limited to:
a) time and temperature controls and the corrective actions;
b) equipment and staff hygiene;
c) condition and hygiene of product containers; and
d) practices that effectively control cross contamination.

12.5.7. By Product Management Programme

12.5.7.1. Procedures on by product management shall be documented for all by products and waste generated from the processing operation and shall where appropriate include requirements specified in section 4.7.9 of this standard.

12.5.8. Control During Storage Programme

12.5.8.1. Documented programme on controls during storage must be in place and shall where appropriate include requirements specified in section 4.7.4 and section 4.7.11 of this Standard.

12.5.9. Control During Thawing Programme

12.5.9.1. Documented systems for controls during thawing shall be in place shall where appropriate include requirements specified in section 4.7.3 of this Standard.

12.5.10. Repairs and Maintenance and Calibration Programme

12.5.10.1. Documented programme on repair and maintenance shall be in place and have the following:
a) calibration schedules for machineries, equipment and instruments used in the production;
b) procedures dealing with breakdown;
c) make provisions for regulatory verification to prove effectiveness of control system;
d) make provisions for record keeping;
e) maintenance compound shall comply with the following requirements;
i) only use compounds approved for use in food processing premises,
ii) all maintenance compounds must be labelled.
f) Storage in secure areas separate from processing, except on vessels where storage needs to prevent contamination;
i) Use only approved boiler water additives;
ii) Compressed air must be filtered and otherwise handled to prevent contamination;

12.5.10.2. Maintenance activities shall be noted on a maintenance schedule, or similar, with appropriate target dates for completion and person responsible.

12.5.11. Goods Reception Programme

12.5.11.1. Documented systems for controls of arriving goods shall be in place including records.

12.5.11.2. Procedures in place for the approval of suppliers.

12.5.11.3. Goods received shall be correctly identified and backed by supplier's guarantee.

12.5.12. Parasites Control Programme

12.5.12.1. Where applicable documented systems for the control of parasites shall be in place including:

a) records to indicate implementation of the programme;
a) visual inspection; and
b) removal and or processes applied in inactivation of the parasites.

12.5.13. Traceability and Product Recall Programme

12.5.13.1. Documented system for traceability and product recall shall where appropriate include requirements specified under section 9 of this Standard.

12.5.14. Separation of Non-Conforming Products

12.5.14.1. Documented system shall be in place for the separation of non-conforming products and record keeping procedures including:
a) control of authorized sources;
b) physical separation of raw materials unfit for specific market requirements;
c) separation of processing from products unfit for specific market requirements; and
d) regulatory verification confirming the effectiveness of the separation.

12.6. Document Changes and Control

12.6.1. Changes to documents shall be reviewed and approved by designated personnel. The designated personnel shall have access to pertinent background information upon which to base their review and approval.

12.6.2. Where practicable, the altered or new text shall be clearly marked in the document or the appropriate attachments.

12.6.3. If document control systems allow for amendment of documents by hand pending the re-issue of documents, the procedures and authorities for such amendments shall be defined. Amendments shall be clearly marked, initialed and dated. A revised document shall be formally re-issued as soon as practicable.

12.6.4. Licensed operators have an obligation to ensure that procedures shall be documented to describe how changes in computerised or automated systems are made and controlled.

12.7. Submission of the Documented Food Safety Managements Systems

12.7.1. All licensed operators shall submit current Food Safety Management Systems for approval to NFA one month prior to end of NFA licensing period.

12.7.2. If there was no amendment done during the year, the company shall write to NFA advising of such.

12.8. Internal Audit

12.8.1. Licensed operators shall periodically and in accordance with predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of their documented food safety management systems and the requirements of this standard.

12.8.2. The area of activity audited, the audit findings and corrective actions that arise from them shall be recorded and maintained and made available to the competent authority on request.

12.8.3. Follow up audit activities shall verify and record the implementation and effectiveness of the corrective action taken.

12.9. Food Safety Management Systems Review

12.9.1. In accordance with a predetermined schedule and procedure, the operator shall periodically conduct a review of the management system and activities and or operations to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements.

12.9.2. Findings from management reviews and the actions that arise from them shall be recorded and maintained. The management shall ensure that those actions are carried out within an appropriate and agreed timescale.

12.9.3. Food Safety Management Systems shall be managed or supervised by competent personnel with knowledge in food safety management systems principles and application.

12.10. Maintenance of Records

12.10.1. The licensed operators shall maintain records of internal audit reports and other associated records, including those of corrective and preventive actions.

12.10.2. Records shall be maintained in safe and convenient storage and archival areas for duration of the product shelf life.

SECTION 13: ORGANIZATION OF OFFICIAL AUDITS AND INSPECTIONS

Application

This section shall be applied to NFA authorized officers performing official control and related food safety functions. This section also details auditing and inspection requirements to be followed when inspecting and monitoring a facility's ability to meet the:

a) Structural and operational requirements of this Standard;
b) Product specification;
c) Pre- requisite requirements; and
d) HACCP programme requirements.

NOTE: *The results of these audits and inspections and monitoring in conjunction with the risk allocation shall help to designate facility inspection frequencies as outlined in Table 15 under section 13.5 of this standard.*

Confidentiality of Information

All commercially sensitive information supplied by the operator shall be treated as highly confidential and shall not be disclosed to any third party without the prior written consent of the operator.

Requirements

13.1. Allocation of Risk Categories to Facilities

13.1.1. A risk category, of which there are three (**low, medium and high**-**risk** fish and fishery products), shall be assigned to each facility. The risk category shall be the risk associated to the prepared product(s) at the facility as stated in the Risk Selection Table below. Facilities preparing different types of products such as a low, medium or high-risk food shall be inspected according to the product with the highest associated risk.

NOTE: *The risk allocated to the food is related to the chance of the hazard occurring, types of hazard(s) associated with the food and process and the potential severity of the hazard(s).*

Table 14: Risk Selection Table

Low Risk	Medium Risk	High Risk
• Live fish, live crustacean • Dried sharkfin, dried bêche-de-mer intended for further processing • Other dried Fish and Fishery Products • Frozen or chilled raw fish (non-histamine producers) that is to be fully cooked before eating	• Frozen or chilled raw fish (non-histamine producers) from aquaculture or freshwater sources that is to be fully cooked before eating • Reef fish associated to ciguatoxin • Demersals and other species associated to heavy metals	• Sashimi tuna or other scombroid fish, other frozen or chilled Fish and Fishery Products to be eaten raw or chilled Fish and Fishery Products packaged in a vacuum or modified atmosphere package • Other ready to eat fish and fish products • Frozen or chilled cooked Fish and Fishery Products not required to be re-heated by the consumer • All bivalves to be eaten raw or cooked • Frozen and chilled fish implicated with histamine production • Low acid, acidified or low acid aseptically packed canned foods. • Pasteurised crab meat ready to eat.

13.2. Exceptions of Risk Allocation

13.2.1. Storage facilities, landing sites, transport and vessels exempted from risk allocation however shall be approved by National Fisheries Authority.

13.3. Audit

13.3.1. Authorized Officers shall audit the facilities to ensure compliance with the requirements of this Standard, the importing country requirements and the provisions of the documented Food Safety Management System.

13.3.2. Audits shall verify that operators apply procedures continuously and properly concerning the requirements in Section 12 of this Standard.

13.3.3. Audits shall be conducted annually or as and when authorized by the Managing Director.

13.3.4. The facility is rated based on audit outcome as shown in Table 15 of this Standard.

13.4. Inspection

13.4.1. Authorised Officers shall inspect, monitor and rate the facility.

13.4.2. Inspections shall be conducted in accordance with the requirements of this Standard and the provisions of the approved food safety management system.

13.4.3. The purpose of the inspection is to ensure that:

a) licensed operator maintains and implements the approved version of the FSMS;
b) corrective action requested following inspection and monitoring have been implemented within the agreed time frame;
c) importing country's requirements are being met; and
d) directives issued to the licensed operator are being implemented.

13.5. Inspection Frequencies

13.5.1. Inspection frequencies are based on the facility rating shown in Table 15 in this Standard.

13.5.2. Frequency of inspection for new facilities:

a) initial inspection before licensing shall be carried out on equipment, infrastructure and surroundings within the facility; and
b) assessment of operational requirements shall be undertaken in the first three months of production.

13.5.3. Frequency of inspection for existing facilities shall be conducted based on risk associated with the product or process in accordance to Table 15 in this Standard.

13.5.4. Unannounced inspection and monitoring shall be conducted by an Authorised Officer at any time to ensure requirements of this Standard are maintained.

13.5.5. Inspection may also be carried by an Authorised Officer on an ad hoc basis or as per the determined inspection schedule.

13.5.6. Random or unannounced inspections of vessels may be carried out during unloading or transshipment depending on the risk allocation of the vessel.

Table 15: Facility rating and Inspection Frequency

Facility Rating	MI	SE	**CR**	**Low Risk**	**Medium Risk**	**High Risk**
EXCELLEN	0 – 6	0	0	every year	every 8 months	every 6 months
GOOD*	7 – 8	1 – 2	0	every 9 months	every 6 months	every 4 months
AVERAGE	9 or more	3 – 4	0	every 7 months	every 4 months	every 3 months
FAIL	N/A	5 or more	1	Immediately do follow up inspection to ensure non-conformance(s) is/are corrected		

MI = Minor Deficiency **SE** = Serious Deficiency **CR** = Critical Deficiency

* Total number of SEs or MIs does not exceed five. Five or more SEs or one or more CRs is considered a fail

13.6. Ratings Change and Frequency of Inspection

13.6.1. When the rating of a facility is changed the frequency of inspection shall be based on the changed rating.

13.7. Follow-up Audit and Inspection

13.7.1. Follow up audit and inspections are conducted to ensure that deficiencies identified in audits and inspections are corrected within the required timeframe. The Authorized Officer shall verify and ensure that such corrective measures are effective.

13.7.2. In the event where the Authorised Officer finds the corrective measure to be ineffective or where there is a reoccurrence, the Authorized Officer may refer such matter to the compliance unit of NFA for enforcement under the Fisheries Management Act as amended.

13.8. Failure of a Facility

13.8.1. Where a facility has or has failed an audit or inspection, an investigation shall be carried out to determine if the failure was due to the operators' negligence or due to other factors. Consequently:

a) if the operator is found to be negligent and has failed to exercise due care, the failed rating shall stand; and
b) where it is determined that the licensed operator is not responsible due to other factors, the Authorised Officer may limit enforcement action.

13.9. Suspension of Operation

13.9.1. The Managing Director may suspend operations and or target operation at any time if the facility fails an audit or inspection where objective evidences are there for non-compliance with food safety issues.

13.9.2. Suspension shall be in writing served to the licensed operator with specific terms and conditions.

13.10. Appeal

13.10.1. Licensed operators may appeal a suspension in writing within 3 working days of the date of the issuance of the suspension notice.

13.10.2. Licensed operators may appeal per condition(s) stated in the suspension notice.

13.11. Deviated Product Lots

13.11.1. Where a product has deviated from set specifications, an investigation shall be carried out to determine whether the deviation was due to the operators' negligence or due to other factors.

13.11.2. Where it is determined that the licensed operator is not responsible the Authorised Officer may limit enforcement action to product action or request a recall.

13.12. Compliance, Deficiency Types and Corrective Action Requirements

13.12.1. When using inspection forms:

a) all compliant parameters shall be denoted with either a tick or "OK" in the appropriate box;
b) all deficiencies or defects shall be denoted with an (X) adequately described, scored as Critical (CR), Serious (SE) or Minor (MI);
c) corrective action request shall be issued to all Critical, Serious and Minor non-conformance with a due date by which the non-conformance shall be corrected; and
d) all observations should be recorded.

13.13. Deficiency Categories

13.13.1. Critical Deficiencies (CR)

13.13.1.1. A Critical Deficiency is a situation where:

a) there is a condition or malpractice observed in the establishment that can lead to the fish becoming unsafe or unwholesome;
b) there is non-compliance with this Standard that can result in the food being a health hazard;
c) the product fails to comply with minimum specifications;
d) the product has a fraudulent trade description;
e) the facility fails an "Operations and Sanitation" or "Construction and Equipment" inspection; which may result in products being unsafe for human consumption; and
f) there are 5 or more Serious deficiencies.

13.13.1.2. The situations described in section 13.13.1.1 (a,b,c,d, or e,) of this Standard shall cause the facility to stop operating immediately until the Authorised Officer is satisfied that a Critical Deficiency (CR) no longer exists.

NOTE: *Examples of CR could include, severe breakdown in sanitation procedures, waste contaminating foods, use of non-potable water and ice or serious pest infestation, a breakdown in specified procedures on the company's HACCP Plan or process flow diagram – all leading to unsafe food production.*

13.13.2. Serious Deficiencies (SE)

13.13.2.1. A Serious Deficiency is a situation where:

a) there is a condition or malpractice observed in the facility that can prevent proper implementation of hygienic practices or obtaining an appropriate level of hygiene, and thus lead to the production of a contaminated or spoiled fish product, but with serious food safety implications; or
b) non-compliance with this standard may result in the food being potential health hazard but is not a Critical Deficiency.

13.13.2.2. Any SE deficiency shall be corrected upon the agreed timeframe between licensed operator and the Authorised Officer:

a) all serious deficiencies shall be corrected within 48 hours;
b) any serious deficiencies that requires longer period to correct may be approved by the authorised officer upon reasonable justification.

NOTE: *Examples of SE could include, equipment and infrastructure, ineffective pest control, failure to collect waste regularly, waste contaminating food, inadequate cleaning programme, and inaccurate calibration, failure to label chemicals, inadequate trained staff, inadequate stock rotation, and variation from the set HACCP or process flow. Records are not reliable enough to demonstrate that a SR has been or will be avoided*

13.13.3. Minor Deficiencies (MI)

13.13.3.1. A Minor Deficiency is a situation where:

a) there is a condition or malpractice, which does not conform to the requirements, is neither serious nor critical and does not directly pose any food safety threat;
b) all minor deficiencies shall be corrected within three weeks; or
c) any minor deficiencies that requires longer period to correct may be approved by the Authorised Officer upon reasonable justification.

NOTE: *Examples of MI could include (e.g. inappropriate water temperature, minor sanitation or construction deficiencies, unsigned records, lack of verification of records as scheduled etc)*

Part 2: Export Requirements

PART 2: EXPORT REQUIREMENTS

Application

This part shall be applied to licensed operators having export license and are in compliance to section 4, section 11 and section 12 of this Standard.

Requirements

14. Fish Export Facility License

14.1. A fish storage facility, fish factory or licensed vessel, may be licensed as a fish export facility, and considered a premise for the purposes of this Standard.

14.2. A fish export facility license shall not be granted in respect of a facility intended for the preparation, processing or storage of fish for human consumption unless, in the opinion of the Managing Director, the facility is not capable of such preparation, processing or storage to internationally acceptable standards for the type, class or species of fish for which the license is being sought.

14.3. All fish export facilities in which fish intended for human consumption are prepared, processed or stored shall, to the satisfaction of the Managing Director:

a) comply with any laws relating to food for human consumption;
b) be constructed so as to be capable of being maintained, and be maintained, in a clean and hygienic condition; and
c) be equipped only with equipment and fittings which are capable of being sanitized and are maintained in a clean and hygienic condition.

14.4. Where a product type is processed in anticipation of an export license, the products shall not be exported or distributed unless minimum requirements in part 1 of this Standard are met.

14.5. All export facilities shall have and operate under Food Safety Management Systems and in compliance with the requirements of this Standard.

15. Endangered Species & CITES Pre-Export Requirements

15.1. General Conservation and Environmental Protection Requirements for Trading of Endangered Species

15.1.1. Licensed export facilities shall be subjected to the general international trade requirements for endangered and vulnerable species & CITES requirements where applicable and appropriate permits through CEPA must be obtained.

15.2. Company Performance

15.2.1. Where the Licensed Exporter fails to meet the minimum requirements of this Standard, the Authorised Officer can decide on the disposition of the products processed in that facility.

15.3. Condemned Fish and Fishery Products

15.3.1. Condemned fish and fishery products that are not diseased but otherwise suitable for conversion to pet/ animal food or bait may be converted for these purposes.

15.3.2. Fish and Fishery Products used for pet and or animal food or bait shall be kept separate from fish and fishery products intended for human consumption and stored in smooth impervious containers. These containers shall be clearly marked in large letters at least 5 cm or above in size, and placed in a restricted holding area with the words:

a) CONDEMNED NOT FOR HUMAN CONSUMPTION;
b) PET FOOD ONLY OR ANIMAL FOOD ONLY; and
c) BAIT ONLY.

15.3.3. The detailed document with regard to the rejected lot shall be kept on record and made available for verification.

16. Export Certification

16.1. General

16.1.1. Any exporter intending to export fish and fishery products shall:

a) apply in prescribed format;
b) provide all the relevant export documents to verify compliance with this Standard and the importing countries' requirements;
c) comply with NFA's export certification procedures; and
d) comply with mass balance requirements for tuna and tuna product exports.

16.2. Export Documentation Requirements

16.2.1. All exporters and their agents intending to export fish and fishery products shall lodge an application to the NFA seven days prior to the shipment date for export certification. Such application shall contain the following documents:

a) health certificate;
b) commercial invoice;
c) proforma invoice for live and fresh chilled products;
d) packing list;
e) bill of lading or airway bill;
f) other relevant documents (if applicable); and
g) importing country requirements where applicable.

16.2.2. The authorized officers have the power to delay authorization of the export if the application is lodged less than seven days prior to the shipment date.

16.2.3. Exporters shall only amend their application twice. Any further request for amendment will attract a penalty.

16.2.4. Stuffed fish including live aquatic fish and ornamental fish shall be accompanied by a Sanitary Certificate including relevant supporting documents from both NFA and NAQIA.

16.3. Preparation and Loading for Export Shipment

16.3.1. Loading for export shall take place in accordance with the following:

a) where fish and fishery products are being loaded for export, whether into a container, the hold of a ship or an aircraft, an Authorised Officer of NFA - should be allowed to conduct random food safety inspections;
b) where refrigerated containers are used for transportation of fresh, chilled or frozen fish and fishery product, these shall meet where applicable the requirements specified in Part 1 Section 8 of this Standard;
c) for fresh, chilled or frozen fish and fishery products, operators shall demonstrate maintenance of cold chain from point of receipt to delivery by way of records automatically generated;
d) for fresh, chilled or frozen fishery products operators shall ensure that adequate system are in place to ensure containers used to keep temperature rises to minimum after loading and during handling and transport;
e) direct export from fishing ground by PNG flagged vessels without prior approval is a serious breach of this standard and the Fisheries Management Act 1998 as amended;
f) for live fish, loading shall meet the minimum requirements specified in Part 1 section 11.4.3 of this standard;
g) loading of fresh, chilled or frozen fishery products shall be completed within the shortest time possible to maintain cold chain; and
h) any person involved in the loading operations shall assist the Authorised Officer in this inspection. Failure in compliance with this provision is an offence under the Fisheries Act.

17. Export Rejection

17.1. Rejection during inspection

17.1.1. Where an Authorised Officer during inspection:

a) has reasonable grounds to believe that the fish and fishery products is unfit for human consumption the officer shall reject the products for export; or
b) suspects that the fish and fishery product may be compromised. The operator may reprocess and resubmit for inspection and sampling using the relevant sampling plan of this Standard.

17.1.2. Fish and fishery products rejected under section 17.1.1, (a) of this Standard shall have all references to export or suitability for export removed and shall have marked on it in capital letters at least 5 cm in size "NOT FIT FOR HUMAN CONSUMPTION".

17.1.3. Tuna and tuna products shall be rejected if it fails to meet the requirements of mass balance during export certification process.

17.2. Rejection during transit and upon arrival

17.2.1. Where a container of fish or fishery product is rejected during transit or upon arrival at the export destination or market, as it is found to be unfit for human consumption, the National Fisheries Authority shall be notified in writing by the exporter within 24 hours of receiving the advice.

17.2.2. A report on the rejected lot in the container must be communicated to NFA within 10 working days of receiving the rejection notification. This report shall include the following information:

a) details of the product including product name/type, pack size, product form, preservation method;
b) quantity of product;
c) location of product/market(s); and
d) details on the reason for detention/rejection;

e) actions taken to recall the product;
f) agreed product disposition (in agreement with the National Fisheries Authority); and
g) certificate of condemnation shall be issued by NFA upon verification.

17.2.3. An investigation of the rejected lot in section 17.2.2 in this Standard shall be carried out by NFA to determine the cause and appropriate action and or penalty shall be instituted depending on the seriousness of the issue.

17.3. Rejection from importing country

17.3.1. The Licensed Exporter shall communicate to NFA on any rejection from importing country in reference to section 17.2.3 of this standard.

17.3.2. Fish and fishery products rejected from the EU market is communicated though the NFA via the Rapid Alert System as the first point of Contact.

17.4. Rejection from domestic market

17.4.1. Where there is rejection of the products destined for the local market, the operator must inform NFA and relevant regulatory authorities within 24 hours.

17.4.2. NFA and relevant regulatory authorities shall conduct the investigation and decide on the disposition.

17.4.3. The detailed document with regard to the rejected lot shall be submitted to NFA and the relevant regulatory authorities within 10 working days from the date of rejection.

18. Complaint Response Management

18.1. All exporters shall have a written policy and procedures for the resolution of complaints received from customers or other parties.

18.2. Records shall be maintained of all complaints and of the investigations and corrective actions taken by the management.

18.3. Should the Operator or Exporter fail to inform NFA of a complaint under this Clause and NFA is made aware of this complaint by other sources, NFA may suspend the Operator or exporters license and apply other relevant and appropriate enforcement actions.

19. Certification to Export Fishmeal and Fish Oil

19.1. Any exporter intending to export fishmeal fish oil:
a) shall apply in prescribed format, provide all the relevant export documents to verify compliance with this Standard;
b) shall comply with NFA's export certification procedures;
c) meet the requirements of product specification in ANNEX B13 and ANNEX B14 of this Standard; and
d) meet importing countries requirements.

20. Information and Data Management

20.1. All licensed operators shall comply with the following requirements to allow the competent authority in discharging its official controls effectively in a timely manner.

20.2. All relevant data and information, including imports, harvesting, transport, landing, storage, processing and export shall be made available on request in a timely manner.

20.3. All data and information provided shall be correct and authentic.

20.4. Penalties shall be instituted for those who provide false and misleading data and information.

Part 3: Import Requirements

PART 3: IMPORT REQUIREMENTS

Application

This part shall be applied to:
a) NFA licensed operators intending to import fish and fishery product for processing and or reprocessing for domestic and or export market;
b) landing from foreign flag vessels where appropriate seen as import; and
c) collaborative working arrangements with relevant line agencies where applicable.

Requirements

21. General Trade and Import Requirements

21.1. Product Classification and Listing

21.1.1. For the purpose of this Standard, the product classification and listing under the national tariff schedule by the PNG Customs Services for prescribed products for both Live Fish and Fishery Products and the Processed Animal Food shall be aligned and categorized in accordance with the international Harmonized Commodity Description and Coding System (HS Code) as outlined ANNEX G of this Standard.

21.2. Standards of Trade Commodity

21.2.1. Imported fish and fishery products shall be caught, handled processed, stored, packaged and transported in compliance with requirements in this standard.

21.2.2. All new suppliers for fish and fishery products shall be subjected to import risk assessment as stipulated under the PNG NAQIA Act 1997.

21.2.3. All imported fish and fishery product shall be in compliance with PNG Food Sanitation Regulation 2007, and PNG Food Sanitation Act 1991 and PNG NAQIA Act 1997.

21.3. Standards (Codes of Practice and Guidelines) for Imports

21.3.1. Where no technical requirement (inclusive of both specifications and criteria) has been defined specifically in this Standard for importation of fish and fishery products, Codex Standards, Codes of Practice and or Guidelines and any relevant international standards, guidelines or best practices shall be adopted accordingly and used to support this standard and its application.

22. Licensing Requirements

22.1. General Requirements

22.1.1. The imports of all fish and fishery products are subjected to the Section 30 of the Food Sanitation Act 1991, PNG Fisheries Management Regulation 2000 as amended and PNG NAQIA Act 1997.

22.1.2. The National Department of Health (NDoH) is empowered by the Food Sanitation Act 1991 as the competent authority responsible for the trade license issuance, management and enforcement of food business (food importers) with regard to the health and food sanitation (i.e., safety and quality) of food products including the fish and fishery products.

22.1.3. The National Fisheries Authority (NFA) is empowered by the Fisheries Management Act 1998 as amended to regulate operators that are licensed by NFA to fish, process, and export fish and fishery products and shall work in collaboration with the National Department of Health and National Agriculture Quarantine Inspection Authority (NAQIA) with regard to the regulatory compliance of the importation of fish and fishery products into PNG either for domestic market or for re-processing and export.

22.2. Application for Import Permit and Trade License

22.2.1. All importers intending to import processed fish and fishery products shall obtain the Import Permit prescribed in Schedule 10 (Form 10) of the Food Sanitation Regulation 2007. For new importers and new brand of product on a one-off basis or as required by NDoH.

22.2.2. All importers shall apply for an import permit in the manner provided for in Section 5 of NAQIA Act 1997 for each consignment.

22.2.3. On receipt of an import application, the Managing Director or Secretary may require the applicant to submit additional information for consideration if required.

22.2.4. All importers shall have a valid and appropriate Trading License fit for the purpose of storing, processing and placing on the market for public consumption prescribed in Schedule 10 (Form 13) of the Food Sanitation Regulation 2007.

22.3. Conditions for Issuance of Trading License and Import Permit

22.3.1. All importers intending to import processed fish and fishery products shall be subjected to inspection and audit of the requirements of Part VII Section (31), (32), (33) and Part VIII Section 34 of the Food Sanitation Regulations 2007 as pre-condition for the review and decision for the issuance of the Trading License and Import Permit after being granted approval by the NDoH.

22.3.2. The regulatory agency in this case is the NDoH that can source reports from the NFA on its licensed operators to assist with decision in evaluation of the operator's application for an import permit and trading license should the independent assessment by NDoH is not necessary.

22.3.3. Licensed operators operating a fish processing and exporting activity must first be licensed by the NFA and meet part 1 and 2 of this Standard before applying for an import permit from the relevant authority or government body.

22.4. Importation of Fish and Fishery products by NFA Licensed Operator.

22.4.1. Licensed operators shall ensure all requirements associated with the conditions of use and maintenance of import permit and the license are observed and adhered to at all times.

22.4.2. Licensed operators shall maintain records as are necessary to be able to verify the origin and destination of all fish and fishery products originating from and or stored on premises. Such records should be kept in a manner as to satisfy the requirements of any relevant certification system.

22.4.3. Licensed operators intending to import fish that was not first landed to the licensed facility, as whole frozen and or fresh fish from a licensed and authorized vessel for the purpose of further processing for marketing and export, shall seek prior authorisation from the NFA.

22.4.4. Licensed operators will not import semi processed or processed canned fish to a facility licensed by the NFA without prior written authorization from the Managing Director.

22.4.5. Failure to seek such prior authorisation shall be a serious breach of this Standard and the Fisheries Management Regulations 2000 as amended.

22.5. Criteria for Registration of Importers

22.5.1. Any person or company, facility or operator intending to import any fish and fishery product into Papua New Guinea shall be a holder of and meet all or some of the following conditions as necessary:

a) a certificate of incorporation issued by the registrar of companies by Investment Promotion Authority;
b) tax identification number (TIN) issued by Internal Revenue Commission;
c) Import Permit and Trading License issued by the relevant government authorities
d) relevant licenses issued by NFA for the intended purposes;
e) operate within the guidelines of Food Safety Management Systems as required in Part 1 of this standard; and
f) appropriate storage and transport facilities.

22.5.2. The person or company shall provide the name, address, phone, e-mail address and proof of business location.

22.5.3. Storage and transportation of fresh, chilled and frozen fish and fishery product shall comply with the provisions of section 7 and 9, in part 1 of this standard.

22.5.4. Dried, salted and canned fish or fishery products shall be stored in appropriate storage facilities under good hygienic and sanitary conditions.

23. Trade Descriptions and Import Requirements

23.1. General Import Information Declaration

23.1.1. All importers have an obligation to ensure that all imported Fish and Fishery Products comply with applicable PNG Laws, Standards and international standards and guidelines relating to the product safety, legality and wholesomeness that is fit for human consumption.

23.1.2. Importers intending to import fish and fishery products shall request authorisation from NFA in the prescribed form. Such request shall meet the following minimum requirement where applicable:

a) the common and scientific name of the fish;
b) the quantity intended for import;
c) the country of origin;
d) the name and address of supplier;
e) official registration and approval number of the supplier;
f) the name of the designated Regulatory Authority or Competent Authority in the exporting country;

g) the type and description of products intended for import;
h) the purpose of import;
i) the place and method of storage;
j) the means of transport and distribution;
k) the name and address of the intended recipient of the consignment;
l) the import permit number;
m) health certificate;
n) phyto-sanitary certificate;
o) captain statement;
p) catch certificate;
q) certificate of analysis;
r) bill of lading; and
s) language shall be in English.

23.2. General Requirements for Import of Whole Round Tuna

23.2.1. Import of whole round tuna shall meet the following minimum requirement where applicable:
a) catch certificate;
b) health certificate;
c) bill of lading where applicable;
d) captain or fishing master declaration; and
e) language shall be in English.

23.3. Labelling and Packaging Requirements

23.3.1. All importers and their agents intending to import fish and fishery products into PNG shall ensure that products are correctly labelled to indicate:
a) common and scientific name of fish or fish product;
b) country of origin;
c) name of manufacturer and or distributor;
d) date of manufacture, production or processing;
e) date of expiry;
f) instruction on storage conditions and intended use;
g) type of processing or preparation or specific treatment it has undergone;
h) the net weight of fish or fish product (g/kg);
i) percentage glazing if applicable;
j) the ingredients if applicable;
k) the name and code of food additives, if applicable;
l) type of packing (normal, vacuum or modified atmosphere packing);
m) code number, lot number or batch number of the product;
n) nutritional content of the product;
o) allergen and GMO declaration if applicable; and
p) all labelling shall be in English and can be easily read and understood.

23.3.2. Importation of un-labelled fish and fishery products shall be prohibited.

23.3.3. Importation of mis-labelled fish and fishery product is a serious offence.

23.3.4. All imported fish and fishery product shall be coded.

23.4. Traceability Information Requirements

23.4.1. All importers and their agents shall maintain proper records to assist in traceability of the imported product. Such records shall be made available to NFA as and when requested.

23.4.2. Record shall be maintained for the shelf life of the product as required under this standard.

23.5. Import Facility and Processing Requirements

23.5.1. Fish and fishery products shall be imported only from a facility, fishing vessel, factory vessel, a fish farm or any company registered and approved for export by the designated authority of the exporting country.

23.5.2. For fish and or fishery products imported as whole round and or for further processing in Papua New Guinea and then exported to any EU member states, the fish and fish product shall be from a facility, fishing vessel, factory vessel, a fish farm or any company registered and approved for export by the competent authority of the exporting country and appears on the EU approved list.

23.6. Health Certification Requirements

23.6.1. All imported fish and fishery products shall be from a manufacturer, processor or supplier that implements a food safety management system and procedures based on HACCP principles.

23.6.2. The consignment shall be accompanied by a Health Certificate approved by the relevant competent authority stating that:

a) the product is fit for human consumption; and
b) the fish or fish product has been produced, caught, handled, processed, packaged, labelled, stored and transported under sanitary and hygienic standards as spelt out in the Codex Alimentarius – General Principles of Food Hygiene and the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003, Rev).

NOTE: *The format of the Certificate shall at minimum contain information outlined and appropriately filled in accordance to Recommended Codex Guideline on Model Certificate for Fish and Fishery Product (CAC/GL 48/2004). See ANNEX F for the Model Certificate.*

23.6.3. Canned tuna shall be accompanied by the relevant Low Acid Canned Foods (LACF) process authority approval, such as approved Process Schedule to produce canned tuna.

23.7. Import Risk Assessment (IRA)

23.7.1. Fish and fishery products shall be imported from an IRA approved country and operator and endorsed by NAQIA as mandated under National Agriculture and Quarantine Inspection Authority Act 1997.

23.7.2. All importers and their agents shall ensure that the imported fish and fishery shall be sourced from approved facility or facilities and fishing vessels operating under food safety management system..

23.7.3. Random import risk assessment shall be conducted by relevant authorities as and when required.

23.8. Import Verification Requirements

23.8.1. On arrival of the consignment, the importer or its agent shall:
a) notify NFA authorized officer of the date of arrival of the consignment at least 48 hours in advance; and
b) make available relevant import documents for verification.

23.8.2. The importer or its agent shall ensure that the consignment of fish and fishery product is not removed from the port and or place of inspection before it is inspected and approved by an authorized officer.

23.8.3. Any consignment of fish or fish and fishery product, landed at the designated port of entry, shall be inspected in the presence of the importer or its agent.

23.8.4. Where an inspection is being carried out, the authorized officer may:
a) require the importer to produce any document in relation to the consignment;
b) check the whole consignment, or parts thereof, as may be deemed appropriate;
c) open as many boxes, containers or packages as he/she may deem fit; or
d) collect appropriate number of samples for identification and laboratory analysis if needed.

23.8.5. The authorized officer may carry out a physical check where applicable on the consignment to verify:
a) the species of fish in the consignment;
b) the quantity as mentioned in the import documents;
c) the quality of the product through organoleptic assessment;
d) compliance with temperature requirements;
e) packaging and labelling of the products;
f) presence of parasites; or
g) other relevant checks as necessary.

23.9. Consignment Seizure Criteria

23.9.1. The consignment of fish and fishery products, shall not be released if it does not meet the Food Safety Requirements of this standard.

23.9.2. The consignment of fish and fishery products shall be seized if the documents are deemed fraudulent.

23.9.3. The consignment of fish and fishery products shall be seized if the labelling requirements of this standard is not met.

23.9.4. The consignment of fish and fishery products shall not be released, if the authorized officer has reasonable grounds to believe that the product originated from an illegal source.

23.10. Import Detention, Disposal and Destruction Requirements

23.10.1. Where the test result for re-sampled product reveal positive, the whole lot, batch or consignment shall be detained and destroyed as deemed appropriate by the NFA and in collaboration with the relevant authorities dealing with imports.

23.10.2. The NFA and or parties for collaboration on imported goods being fish and fishery products shall dispose of any consignment of fish and fish product, forfeited and detained.

23.10.3. The importer shall not be entitled to any compensation for the fish and fish products forfeited and detained.

23.10.4. The importer shall bear all the cost incurred for the destruction or re-shipment of condemned goods.

23.11. Import Release Requirements

23.11.1. The authorized officer may release the consignment if it satisfies the requirements of this Standard.

23.11.2. The consignment shall be removed from the customs area only if the authorized officer gives a written or electronic approval to the PNG Customs Authority.

24. Import Sampling and Testing Requirements

24.1. Sampling and Testing Requirements

24.1.1. NFA authorized officer may collect samples of fish and fishery product, from consignment imported into PNG, for the purpose of identification and laboratory analysis for verification.

24.1.2. The samples shall be collected at the ports of entry or any other place where the imported fish is kept or stored such as container terminal or the cold rooms.

24.1.3. Sampling shall be carried out by an authorized officer in accordance NFA sampling protocol.

24.1.4. Samples shall be tested by a laboratory designated and approved by the NFA.

24.1.5. Where the result is unsatisfactory for a particular test, the consignment shall be subject to further re-sampling and re-testing where applicable according to Part 1 of this standard.

24.1.6. Testing parameters for fish and fishery products shall be, where applicable, in accordance with the Part 1 under Section 11 in this standard.

25. Importer-In-Country Management Requirements

25.1. Good Importing Practice Requirements

25.1.1. All importers and or their agents shall have in place systems and procedures to demonstrate:

a) distribution and supply requirements;
b) traceability and recall systems;
c) transportation and outbound logistical requirements;
d) emergency management requirements; and
e) documentation and records management requirements.

26. Catch Certification Requirements for Tuna

26.1. All importers and their agents shall ensure that the imported fish and fishery products did not originate from an illegal source.

26.2. Tuna imported into PNG shall only be accompanied by a catch certificate in conformity with this standard.

26.3. The catch certificate shall be validated by the flag state of the fishing vessel or fishing vessels which made catches from which the fishery products have been obtained. It shall be used to certify that such catches have been made in accordance with applicable laws, regulations and international conservation and management measures.

26.4. The catch certificate shall contain all the information specified here and shall be validated by the competent authority of the flag state with necessary powers to attest the accuracy of the information:

a) name of the fishing vessel;
b) flag state of the vessel;
c) area of catch (EEZ/AW);
d) fishing Vessel License/Authorisation/Registration Number;
e) validating authority;
f) transport details;
g) transshipment details;
h) IMO/UVI Number of the vessel;
i) radio call sign of the vessel;
j) specie and quantity of catch imported;
k) specie caught;
l) product type;

m) HS code;
n) catching dates;
o) catch certificate document reference number; and
p) exporter details.

26.5. In order to import fish and fishery product such as semi processed and whole round tuna constituting one single consignment, transported in the same form, the importer shall submit documented evidence that the fishery products did not undergo operations other than unloading, reloading or any operation designed to preserve them in good and genuine condition, and remain under the surveillance of the competent authorities in that exporting country.

26.6. A documented evidence issued by the competent authorities in that exporting country:
a) giving an exact description of the fish and fishery products, the dates of unloading and reloading of the products and, where applicable, the names of the ships, or the other means of transport used; and
b) indicating the conditions under which the fishery products remain in that exporting country.

26.7. All importers and their agents shall ensure that the documented evidence referred to in section 7.5.2 shall contain the following minimum information specified here and shall be validated by the competent authority of the exporting country with necessary powers to attest the accuracy of the information:
a) description of the fishery product;
b) flag state and catch certificate number;
c) product weight;
d) port and date of unloading;
e) fishing vessel name and flag;
f) date of re-loading;
g) port and place of re-loading;
h) vessel name, flag or other means of transport used for reloading;
i) condition of storage;
j) name and address of storage facilities if product was stored prior to re-loading;
k) name and address of Exporter; and
l) document reference number.

Annexures

ANNEX A: OPERATOR INFORMATION FORM

General Information

1.1 Name and Address Including location of the Establishment/Factor	**1.2 Name of the Chief Executive Officer**
xxx	xxx
1.3 I s the processing plant owned or leased ☐Owned ☐Leased *(tick a box)*	**1.4 If leased, name and address of the owner** xxx
1.5 Year the plant was constructed xxx	**1.6 Year(s) of the last major alteration to the plant** xxx
1.7 Exporting Countries ☐European Union Countries ☐USA ☐China ☐Others (specify)	**1.8 Scope of the Processing Activities**

1.9 Type of Finished Product and Package *(select type applicable to your facility)*

	Finished Product	**Packaged Type**
☐	Fully cooked prepared foods	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil)
☐	Fully cooked prepared foods	Other than reduced oxygen
☐	Partially cooked or uncooked prepared foods	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil)
☐	Partially cooked or uncooked prepared foods	Other than reduced oxygen packaged
☐	Raw fish	Reduced oxygen packaged (e.g. mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil)
☐	Raw fish	Other than reduced oxygen packaged
☐	Smoked fish	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil)
☐	Smoked fish	Other than reduced oxygen packaged
☐	Others *(specify here)*	

1.10 Addition activities if any	**1.11 Average Production Output in previous year** a) Fish and Fishery Products = _____ MT b) By products = _____ MT

1.12 Total exports during the previous year

Product Type	Destination	Quantity, kg
Xxx	Xxx	Xxx
Xxx	Xxx	Xxx
Xxxxxx	Xxxxxx	Xxxxxx
Xxx	Xxx	Xxx
Xxx	Xxx	Xxx
Xxx	Xxx	Xxx
Xxx	xxx	xxx

1.13 Is your production seasonal or all year around?	**1.14 If all year around,**
☐Seasonal ☐ All Year Around	No. of Working Hours per Day = _____ No. of Working Days per Week = _____

2. Information on Structure of the Establishment

2.1 Preprocessing Facility

Facility	How Many?	Separate or Integrated?	If Separate provide location Address	Distance from Processing Plant, m
Fish Unloading Area	Vvv	Vvvvv	vvvv	Vvvv
Fish Classification Area	Vvv	Vvvv	Vvvv	Vvv

Cold Store	Vvv	vvvvv	Vvvv	Vvv

Are the separate facilities approved by Competent Authority? ☐Yes ☐No
If no, are the application for approval filed with the Competent Authority? ☐Yes ☐No

2.2 Number of workers employed in Production
xxx
Is the number sufficient in relation to the total production capacity of the establishment? ☐Yes ☐No

2.3 Does the establishment have its own ice plant? ☐Yes ☐No

If yes, is the plant integrated or separated from the establishment"
☐Integrated ☐Separated

2.4 Information of Ice Plant Separated from Establishment

Name and Location Address of Ice Plant	Distance from Establishment, m	Type of Ice (block, tube, flake etc)	Total Production Capacity, kg
Xxxxxx	xxxxxx	Xxxxxx	xxxxxx
Xxxxxx	Xxxxxx	xxxxxx	Xxxxxx

Is the plant approved by Competent Authority or application for approval filed with Competent Authority? ☐Yes ☐No

2.5. Information of Cold Stores and Chillers

2.5.a Cold Storres and Chiller Rooms

Facility	Total No.	Total Holding Capacity, MT
Cold Store	Xx	Xx
Chilll Rooms	xx	Xx

Name and Location Address of External Facility

2.5b Is the cold storage integrated to the unit?
☐Yes ☐No
2.5c Is the cold storage sufficient in relation to the total production and frequency of shipments?
☐Yes ☐No
2.5d. If not, does the establishment utilize external cold storage facility?
☐Yes ☐No (if Yes, specify Name and address of the facility)
2.5e If yes, Are such cold stores approved by the Competent Authority?
☐Yes ☐No

2.6. Transporters Information
2.6a. No. of vehicles the establishment has for transportation of raw material, finished products, ice and water (if applicable) No., capacity and registration number of

Registration No.	Vehicle Type	Capacity, MT
VVV nn1	Xxx	Xxx
VVV nn2	Xxx	Xxx
VVV nn3	Xxx	Xx
VVV nn4	Xxx	Xx
VVV nnn	Xxx	Xx

Vehicle Type refers to either: a) Refrigerated Vehicle, b) Insulated Vehicle, c) Non-insulated Vehicle, d) Three-Wheeler, e) Water Tanker
2.6b. Does the company hire outside vehicles ☐Yes ☐No
2.6c. If Yes, please provide details

3. Information About Personnel
3.1 Food Technicians

Name and qualification of the technologist(s) supervising the processing and related operations	Name and qualification of the technologist(s) conducting microbiological and chemical analysis
Xxxxx	Xxxxx
Xxxxx	Xxxxx
Xxxxx	Xxxxx
Xxxxx	Xxxxx
Xxxxx	Xxxxx
Xxxxxx	Xxxxxx

Food Technicians: Personnel who assists in testing the safety and quality of food and conducting validation on improving process parameters.

3.2. Supervisor
No. of Supervisors allocated to each section of the processing

Section	No.
Xxx	Xxx
Xxxxx	Xxxx

Supervisors directly involved in food processing including support services like cleaning and sanitation, engineering etc..

3.3. Gender Distribution of the Food Production Crews
Number of Male and Female crew directly involved in food processing.
Male: _____ Female: _____

3.4. Number of Shift Per Day
xxx
3.5. No of Working Hours Per Shift
xxx

4. Information about Source and Handling of Raw Materials

4.1. Are the raw material:
☐ Sea caught?
☐ Aquaculture? or
☐ or Both?

4.1a. Name of the Source (Fishing waters and Farm)
xxx
4.1b If sea caught, state type fish method used: Xxx

4.2. Landing Centre 4.2a. Name and location address of aquaculture farm from where raw materials are received: Xxx	4.2b. Name and location address of landing site from where sea caught raw materials first landed: Xxx
4.3. Mode of transportation of raw material from source to pre-processing facility (landing area/ fish receiving area) Specify the mode of Transportation: Xxxx	4.4 Temperature limits for raw material during procurement /transportation and receiving at the unit Specify the approved company's temperature limits: Xxxx
4.5. Control Chemical Contaminants in Aquaculture Farm Whether the arrangements have been made to ensure that the aquaculture farms from where raw material are being procured, are not using banned antibiotics/chemicals and are free from industrial contaminants. ☐ Yes ☐ No	**4.6. Raw Material Testing** 4.6a. Are the raw materials being tested for bacteriological/chemicals/ antibiotics contaminants at laid down frequency and the same is addressed in the HACCP manual? ☐ Yes ☐ No 4.6b. If Yes, specify the Document Title/Revision No of the Procedure Used: Xxxx
4.7. Traceability Is there any arrangement for traceability of the raw material up to procurement area? ☐ Yes ☐ No (If, Yes give detail on the scope and type of your traceability system)	**4.8. Records** Are the records for the pertaining to traceability kept permanently on site? ☐ Yes ☐ No (if Yes specify your document retention time (years))
5. Information About the Plant Surrounding	
5.1 Does your premises have defined curtilage? ☐ Yes ☐ No	5.2. Are the premises kept clean in a continuous manner? ☐ Yes ☐ No
5.3. Is there any area within the premises of the establishment, which is non-operative? ☐ Yes ☐ No	5.4. If so, is it cordoned off effectively? ☐ Yes ☐ No
5.5. Are there any swamps, stagnant water, chemical factories or dumps nearby? ☐ Yes ☐ No	5.6. Are rubbish and offal collected and disposed off properly in a continuous manner? ☐ Yes ☐ No
5.7. Are the roads in the premises concreted/tarred or turfed to prevent wind-blown dust? ☐ Yes ☐ No	5.8. Are the premises adequately kept in a continuous manner to prevent rodent harbourage? ☐ Yes ☐ No
5.9. Is there a effective documented system, including the bait map, for rodent control? ☐ Yes ☐ No	5.10. Are there any animals housed nearby? ☐ Yes ☐ No
5.11. Are the surroundings reasonably free from objectionable odours, smoke, dust and other contamination? ☐ Yes ☐ No	
6. Information About Construction and Layout	
6.1. Is the building construction of permanent nature? ☐ Yes ☐ No	6.2. Is the design and layout such as to preclude contamination? ☐ Yes ☐ No
6.3. Does the layout facilitate free flow of work and avoid backtracking? ☐ Yes ☐ No	6.4. Is the facility kept in good repair? ☐ Yes ☐ No
6.5. Is there proper maintenance schedule? ☐ Yes ☐ No	6.6. Does the building provide sufficient protection against the entry and harbourage of rodent, insects, birds etc? ☐ Yes ☐ No
6.7. Does the layout ensure sufficient space in different sections for machinery, equipment, personnel etc. without congestion? ☐ Yes ☐ No	6.8. Is there clear separation between processing and living areas? ☐ Yes ☐ No
7. Information About the Plant Facilities.	
7.1. Are there adequate storing facilities for inedible material, disinfectants and insecticides? ☐ Yes ☐ No	7.2. Is there separate facility for storage of wet and dry items? ☐ Yes ☐ No

7.3. Are there adequate storing facilities for packaging material? ☐ Yes ☐ No	7.4. Are there adequate rest room for workers? ☐ Yes ☐ No
7.5. Are there adequate changing room for male & female workers? ☐ Yes ☐ No	7.6. Is there adequate vehicle washing facility? ☐ Yes ☐ No
7.7. Is there adequate Water treatment plant? ☐ Yes ☐ No	7.8. Is there adequate Alarm system to give warning in case of power failure? ☐ Yes ☐ No
7.9. Are there adequate Generator(s)? ☐ Yes ☐ No	7.10. Are there sufficient No. of toilets? ☐ Yes ☐ No
8. Information About the Raw Material Receiving Section	
8.1. Is there a raised platform with sides and top sufficiently protected to prevent contamination while unloading the raw material? ☐ Yes ☐ No	8.2. Is the raw material receiving section sufficiently separated from processing area to prevent contamination ☐ Yes ☐ No
8.3. Is air curtain or any other device provided at the chute to prevent the entry of flies when the door is opened? ☐ Yes ☐ No	8.4. Are fly killers provided and positioned appropriately to exterminate flies? ☐ Yes ☐ No
9. Information About Entry Points	
9.1. Is suitable washing and sanitizing facility for feet and hands provided at all the entry points? ☐ Yes ☐ No	9.2. Is the hand washing facility located at a convenient place? ☐ Yes ☐ No
9.3. Are the washbasins provided with foot-operated taps? ☐ Yes ☐ No	9.4. Are liquid soaps, disinfectants, nailbrush and single use towels/hand dryers provided in sufficient quantities? ☐ Yes ☐ No
9.5. Are waste bins provided for collecting used towels and are foot operated? ☐ Yes ☐ No	9.6. Is hand dip facility with approved disinfectants provided near the entrance with appropriate level of disinfectants? ☐ Yes ☐ No
9.7. Are signboards directing to wash & sanitize the hand & foot are exhibited at a prominent location? ☐ Yes ☐ No	9.8. Are fly killers provided and positioned appropriately to exterminate flies? ☐ Yes ☐ No
9.9. Are air curtain or like provided at all entry points ☐ Yes ☐ No .	
10. Information about the Doors (Entire Plant)	
10.1. Are the doors of all sections clean and sufficiently wide, made of durable material other than wood and are kept clean? ☐ Yes ☐ No	10.2.Are the doors self-closing type & tight fitting without any gaps? ☐ Yes ☐ No
11. Information about the Window (Entire Plant)	
11.1 Are the windows in all sections of adequate size, made of non-absorbent material other than wood and kept clean? ☐ Yes ☐ No	11.2. Does the window Sill, if any, sloped inwards? ☐ Yes ☐ No
11.3. Are the windows at least one meter above the floor and have fly proofing nets to prevent the entry of flies? ☐ Yes ☐ No	
12 Information about the Floor (All sections)	
12.1. Is the floor in all sections made of hard surface, impermeable, smooth, free from pits and crevices? ☐ Yes ☐ No	12.2. Is the floor cleanable and having sufficient slope? ☐ Yes ☐ No
12.3. Is the slope of floor opposite to the flow of work or sideways? ☐ Yes ☐ No	12.4. Are pallets made of non-absorbent material other than wood provided on the floor for keeping containers of ice and raw/process material? ☐ Yes ☐ No
13. Information about the Drainage (Entire Plant)	
13.1. Is drainage facility at all sections adequate? ☐ Yes ☐ No	13.2. Is open end of the drain protected against entry of rodents? ☐ Yes ☐ No

13.3. Is there facility for conveying waste water into the drains so as to maintain the floor dry? ☐ Yes ☐ No	13.4. Are the drains of adequate size, having sufficient slope and easily cleanable? ☐ Yes ☐ No
13.5. Is the slope of drain opposite to the flow of work/material? ☐ Yes ☐ No	
13. Information about the Walls (Entire Plant)	
13.1. Are the floor to wall and wall-to-wall junctions properly rounded off in all sections? ☐ Yes ☐ No	13.2. Are the walls smooth, light colour and without crevices? ☐ Yes ☐ No
13.3. Are the walls washable? ☐ Yes ☐ No	13.3. Are the switches and other installations on the wall water-proof and cleanable? ☐ Yes ☐ No
14. Information about the Hand Washing and Cleaning Facility	
14.1. Are suitable hand washing and sanitizing facilities provided inside the processing & pre-processing halls? ☐ Yes ☐ No	14.2. Are the washbasins provided with foot-operated taps? ☐ Yes ☐ No
14.3. Is all water taps having hose connection is fitted with non-return valve? ☐ Yes ☐ No	14.4. If hoses are used as outlet for water, whether facility is provided to keep it rolled up when not in use? ☐ Yes ☐ No
15. Information about the Ceiling (Entire Plant)	
15.1. Is the ceiling at all sections in good repair and cleanable? ☐ Yes ☐ No	15.2. Do overhead rafters offer any runway for lizards, cockroaches etc.? ☐ Yes ☐ No
15.3. Are there beams, trusses, pipes or other structural elements and fittings suspended below the ceilings? ☐ Yes ☐ No	15.3. If so, whether there is protection from falling debris, dust or dripping? ☐ Yes ☐ No
16. Information about the Lightings (Entire Plant)	
16.1. Is there adequate lighting? ☐ Yes ☐ No	16.2. Are the lights sufficiently protected & kept clean? ☐ Yes ☐ No
17. Information about the Ventilation (Entire Plant)	
17.1. Is there adequate ventilation/ air conditioner? ☐ Yes ☐ No	17.2. Is mechanical ventilation/exhaust fan provided in areas where air stagnation, condensation of fluids etc. are present? ☐ Yes ☐ No
17.3. Is opening of ventilation/exhaust fan provided with fly proofing? ☐ Yes ☐ No	17.4. Is such fly proofing clean? ☐ Yes ☐ No
18. Information about the Utensils and Working Equipment	
18.1. Are all receptacles, trays, tanks, vats and utensils used made of non-corrodible material and have smooth surface free from cracks and crevices? ☐ Yes ☐ No	18.2. Are they easily cleanable & disinfectable? ☐ Yes ☐ No
18.3. Is any rusted galvanized iron vessel, bamboo baskets, wire mesh containers, enamelled or painted wares used for handling the product? ☐ Yes ☐ No	18.4. Are weighing scales and weights certified by the designated authority? ☐ Yes ☐ No
18.5. Is ice crusher/flake ice machine provided? ☐ Yes ☐ No	18.6. Is it maintained clean and free from rust? ☐ Yes ☐ No
19. Information about the Chill Room (s)	
19.1. Are chill room (s) provided for storing raw/process material? ☐ Yes ☐ No	19.2. Is it kept clean and maintained at temperature range of 0 to 4°C? ☐ Yes ☐ No
19.3. Is it provided with pallets made of non-absorbent material other than wood for keeping containers of raw material and ice? ☐ Yes ☐ No	
20. Information about the Pre-processing Section (Fish Sorting area, Fish Preparation Area etc)	

20.1. Are there signboards directing the employees to wash and sanitize hands and feet before entering the pre-processing hall and after each absence? ☐ Yes ☐ No	20.2. Is air curtain/fly killers provided to prevent the entry of flies when the door is opened? ☐ Yes ☐ No
20.3. Is the pre-processing hall has sufficient lighting and ventilation? ☐ Yes ☐ No	20.4. Is the pre-processing section well separated from other sections? ☐ Yes ☐ No
20.5. Whether water from the tables is directly drained to the drainage? ☐ Yes ☐ No	20.6. Whether tables and or conveyors are provided with running water system? ☐ Yes ☐ No
21. Information about the Table, Utensils and Equipment	
21.1. Are the work table tops constructed of stainless steel or any other non-corroding, non-contaminating, non-reacting and non-absorbent material (specify)? ☐ Yes ☐ No	21.2. Are the tables so constructed and installed that the top and under surface can be easily cleaned? ☐ Yes ☐ No
21.3. Are the table tops smooth, free from corrosion, pits and crevices and can be cleaned easily? ☐ Yes ☐ No	21.4. Are all receptacles, trays, vats and utensils used made of non-corrodible material, other than wood and have smooth surfaces free from cracks and crevices? ☐ Yes ☐ No
21.5. Are they easily cleanable? ☐ Yes ☐ No	
22. Information about the Processing Area	
22.1 Are there signboards directing the employees to wash and sanitize hands and feet before entering the processing hall and after each absence? ☐ Yes ☐ No	22.2. Is air curtain/fly killer provided to prevent the entry of flies when the door is opened? ☐ Yes ☐ No
22.3. Is the processing hall is so designed to have easy flow of work? ☐ Yes ☐ No	22.4. Is the processing hall having sufficient lighting & ventilation? ☐ Yes ☐ No
22.5. Is it having sufficient tables made of non-corrosive, non-absorbent materials? ☐ Yes ☐ No	22.6. Outline current method of processing ☐ Yes ☐ No
22.7. Is or are this being carried out in the factory ☐ Yes ☐ No	22.8. If so, are the time/temperature controls Properly validated by an approved Agency? ☐ Yes ☐ No
23. Information about the Flow of Work	
23.1. Is the layout of workflow unidirectional? ☐ Yes ☐ No	23.2. Is there any chance of cross contamination/ backtracking? ☐ Yes ☐ No
23.3. Is the high risk area, if any, precluded from low risk area? ☐ Yes ☐ No	23.4. Are there separate workers for low risk and high risk areas, if the processing condition warrants such arrangements? ☐ Yes ☐ No
24. Information about the Water and Ice Control Programme	
24.1. Is there a documented water management system? ☐ Yes ☐ No	24.2. Whether plumbing diagram of the water supply system is available with the outlets identified and serially numbered? ☐ Yes ☐ No
24.3. What is the source of water? ☐ Town Supply ☐ Bore Water ☐ Spring ☐ Mix (specify source)	24.4. Is potability water certificate produced for each source of water as per specification? ☐ Yes ☐ No
24.5. If more than one source of water supply is used, are they tested separately? ☐ Yes ☐ No	24.6Whether water used for processing meets the standards stipulated in EC Directive No. 98/83/EC or PNG Standards 3.6 ☐ Yes ☐ No
24.7. Whether relevant test records available? ☐ Yes ☐ No	24.8If non-potable water is used, is there any cross connection of potable and non-potable water? ☐ Yes ☐ No
24.9. Are the water pipes of potable and non-potable water distinguished by different colour codes? ☐ Yes ☐ No	22.10. Is the water used for processing chlorinated to the accepted levels? (less than 2ppm) ☐ Yes ☐ No
24.11. What is the system of chlorination? ☐ Manual ☐ Automatic	24.12. Whether water used for cleaning equipment, floors, etc. is of potable quality? ☐ Yes ☐ No
24.13. Is there a water treatment plant? ☐ Yes ☐ No	24.14. If so, is it adequate to provide sufficient quantity of water for processing? ☐ Yes ☐ No

24.15. If hoses are used as outlet for water whether non-return values are fitted to the taps to prevent contamination through back suction? ☐ Yes ☐ No	24.16. Is there a water storage tank and if so, whether it is protected from outside contamination? ☐ Yes ☐ No
24.17. Is there easy access to the water tank for cleaning? ☐ Yes ☐ No	24.18. What is the capacity of the water storage tank(s)? ☐ Yes ☐ No
24.19. Is the water supply sufficient in relation to the maximum daily production? ☐ Yes ☐ No	24.20. What is the frequency of cleaning & disinfestations of the water tanks? ☐ Yes ☐ No
24.21. Whether there is a documented procedure for cleaning water tank(s)? ☐ Yes ☐ No	24.22. Is water brought from external source in mobile water tankers? ☐ Yes ☐ No
24.23. If so, are the water tankers cleaned and disinfected periodically; what is the frequency? ☐ Yes ☐ No	24.24. Whether there is documented procedure for water tanker cleaning? ☐ Yes ☐ No
24.25. Is the ice used made from potable water as per norms? (To be supported by document) ☐ Yes ☐ No	24.26. Is there adequate facility for hygienic handling and storage of ice? ☐ Yes ☐ No
24.27 If ice is obtained from different sources, are they tested separately and records maintained? ☐ Yes ☐ No	
25. Salt/Chemicals/Additives	
25.1. If salt is used in processing, is it tested for the presence of Staphylococci and Sulphite reducing Clostridium and records maintained there of? ☐ Yes ☐ No	25.2. If any other additive/chemical is used in processing, is it approved by the Competent Authority? ☐ Yes ☐ No
25.3. Are records maintained regarding the traceability and purity of additives/chemicals used in processing? ☐ Yes ☐ No	25.4. Whether fishery products are tested for heavy metals, antibiotics, pesticide residues and biotoxins and other chemicals and records maintained? ☐ Yes ☐ No
25.5. Does the HACCP Plan suitably address these requirements? ☐ Yes ☐ No	
26. Freezing	
26.1. Total number of freezers and their individual capacities	

Freezer ID. No.	Freezing Type	Holding Capacity, MIT	Freezing Time to reach -18oC Product Core Temperature
Xxx	Xxxx	Xxxx	Xxxxx
Xxx	Xxxx	Xxxx	Xxxx
Xxx	Xxxx	Xxxxx	Xxxx
Xxx	xxxx	xxxxx	Xxxx

Freezer Type: Tunnel Freezing, Contact Freezing, Individual Quick Freezing (IQF), Any (Specify if Any)

26.2. Is the freezing method employed appropriate to product requirements? ☐ Yes ☐ No	26.3. Is the freezing capacity adequate for production requirements? ☐ Yes ☐ No
26.4. Are the gauges and thermometers in working order? ☐ Yes ☐ No	26.5. Are they of required accuracy, calibrated at specified intervals and record thereof maintained? ☐ Yes ☐ No
26.6. Is a log book maintained for freezers? ☐ Yes ☐ No	26.7. Is there a prescribed procedure/ schedule for maintenance, cleaning and disinfections of freezers? ☐ Yes ☐ No
27. Packaging and Storage	
27.1 Is separate area provided for packing? ☐ Yes ☐ No	27.2. Does the packing room have rodent control system? ☐ Yes ☐ No
27.3. Is the capacity of cold storage adequate? ☐ Yes ☐ No	27.4. Is cold storage provided with self recording thermograph? ☐ Yes ☐ No
27.5. Is the thermograph calibrated at laid down frequency? ☐ Yes ☐ No	27.6. Is the sensor of the thermograph located at the warmest place away from diffuser? ☐ Yes ☐ No

27.7. Are the thermograph records maintained properly for verification? ☐ Yes ☐ No	27.8. Are the sides and floors of cold storage provided with facilities made of non-corroding and non-contaminating material for air circulation? ☐ Yes ☐ No
27.9. Is the floor of the cold storage waterproof, easy to clean and disinfect? ☐ Yes ☐ No	27.10. Is there adequate lighting with protective covers? ☐ Yes ☐ No
27.11. Is there any frost or ice formation on the walls, ceilings or stored material? ☐ Yes ☐ No	27.12. Is the store provided with alarm bell? ☐ Yes ☐ No
27.13. Whether cold storage has proper defrosting system? ☐ Yes ☐ No	27.14. Is there air curtain or blinds at the entrance of ante-room and cold storage? ☐ Yes ☐ No
27.15. Is an ante-room of suitable size provided and maintained properly? ☐ Yes ☐ No	27.16. Are the cold storage workers provided with clean protective clothing? ☐ Yes ☐ No
27.17. Does the documented rodent control system extend to cold store and ante-room also? ☐ Yes ☐ No	27.18. Is there separate and suitable room for storage of packing materials? ☐ Yes ☐ No
27.19. Is it fly, rodent and vermin proof? ☐ Yes ☐ No	27.20. Does the documented rodent control system extend to store for packing material also? ☐ Yes ☐ No
27.21. Are the walls clean and free from moisture and fungus? ☐ Yes ☐ No	27.22. Are the packing materials stored away from the walls, ceiling in such a way as to allow a person to move around for inspection? ☐ Yes ☐ No
27.23. Are the packing materials stored without touching the ceiling & walls and are covered properly? ☐ Yes ☐ No	27.24. Is the packing material store provided with pallets made of non-absorbent material other than wood or any other suitable arrangement to prevent packing material being placed directly on the floor? ☐ Yes ☐ No
28. Toilet Facilities	
28.1. Is the number of toilets provided in relation to the total number of workers? ☐ Yes ☐ No	28.2. Are the toilets located away from the processing area to prevent contamination? ☐ Yes ☐ No
28.3. Whether the toilet rooms have walls washable, ceiling smooth and floors constructed of impervious material, and easy to clean and sanitize? ☐ Yes ☐ No	28.4. Are the toilets well lit? ☐ Yes ☐ No
28.5. Are they provided with self-closing doors, fly-proofing and flushing arrangements? ☐ Yes ☐ No	28.6Are hand washing and sanitizing facilities, with wash-basins, soap, single use towels, nail brushes and adequate water supply provided near the toilets? ☐ Yes ☐ No
28.7. Are the taps of the wash basin foot operable? ☐ Yes ☐ No	28.7. Is waste bin provided for collecting used towels? ☐ Yes ☐ No
28.9. Are there sign boards directing employees to clean and sanitize their hands with soap/detergents/ disinfectants after using toilets? ☐ Yes ☐ No	
29. Personal Hygiene	
29.1. Has any person been made responsible for maintenance of personal hygiene of employees? ☐ Yes ☐ No	29.2. Are the workers apparently free from any form of communicable diseases, open sores and wounds or any other sources of contamination? ☐ Yes ☐ No
29.3. Are the workers medically examined periodically and whether individual health cards showing that the individual is fit to work in fish processing plant is maintained? ☐ Yes ☐ No	29.4. Are prophylactic injections being administered to the plant employees and records thereof included in the individual cards? ☐ Yes ☐ No
29.5. Has it been made obligatory for all employees to notify incidents of typhoid, dysentery, diarrhoea or any other communicable diseases in their homes? ☐ Yes ☐ No	29.6. Are workers medically examined after each absence due to illness from any contagious disease? ☐ Yes ☐ No
29.7. Are the workers provided with sufficient sets of clean work dress and headgears? ☐ Yes ☐ No	

30. Cleaning and Disinfection of plant, equipment and utensils	
30.1. Is there a documented procedure for cleaning and disinfections of plant, equipment and utensils? ☐ Yes ☐ No	30.2. Is the cleaning schedule exhibited prominently? ☐ Yes ☐ No
30.3. Is there an area earmarked for cleaning and disinfection of utensils and equipment? ☐ Yes ☐ No	30.4. Are facilities of cold/hot water/steam under pressure, wherever appropriate, provided for cleaning and disinfection? ☐ Yes ☐ No
30.5. Is any person made responsible for supervising this work? ☐ Yes ☐ No	30.6. Is the effectiveness of cleaning verified periodically through laboratory tests? ☐ Yes ☐ No
31. Changing Room	
31.1. Are separate changing rooms of adequate size proportionate to the number of workers provided for male and female workers? ☐ Yes ☐ No	31.2 Whether changing room is integrated into the plant layout properly? ☐ Yes ☐ No
31.3. Does the changing room have smooth walls, floors and wash basins with soaps, disposable towels, nail brushes and non-hand operable taps? ☐ Yes ☐ No	31.4. Whether there is arrangement for : a) Change of footwear ☐ Yes ☐ No b) Keeping street clothes separately ☐ Yes ☐ No c) Lockable cupboards ☐ Yes ☐ No d) Collection of soiled working clothes ☐ Yes ☐ No e) Gumboots ☐ Yes ☐ No f) Headgear and wherever necessary gloves/ mouth cover ☐ Yes ☐ No
31.5. Is there suitable in-house arrangement to launder the working clothes of the workers? ☐ Yes ☐ No	
31.6. Is the changing room provided with flush lavatories? Is it kept clean and sanitised? ☐ Yes ☐ No	
31.7. Does the door of the lavatory open directly to processing area? ☐ Yes ☐ No	
32. Effluent Treatment	
32.1 Is the unit having an efficient effluent treatment system? ☐ Yes ☐ No	32.2. Does it comply with the statutory requirements? ☐ Yes ☐ No
32.3. Does the effluent cause any problem to neighbourhood? ☐ Yes ☐ No	
33. Maintenance Schedule	
33.1. Whether there is a documented maintenance procedure for different sections/equipment/ machinery, laboratory items etc. ☐ Yes ☐ No	33.2. Whether maintenance records are kept? ☐ Yes ☐ No
33.3. Whether all the equipment are marked with identification number? ☐ Yes ☐ No	
34. HACCP Based Procedures	
34.1. Has the own check system based on HACCP implemented? ☐ Yes ☐ No	34.2. If so, has the HACCP Based Procedures been submitted to the competent authority for approval? ☐ Yes ☐ No
34.3. Whether all the SSOPs are included in the HACCP Based Procedures? ☐ Yes ☐ No	34.4. Whether process flow charts with products description and manufacturing details are given in the HACCP manual? ☐ Yes ☐ No
34.5. Whether Plumbing diagram of water showing serially numbered taps is given in the HACCP manual? ☐ Yes ☐ No	34.6. Whether persons responsible have been identified? ☐ Yes ☐ No
34.7. Whether records are maintained for this purpose? ☐ Yes ☐ No	34.8 Whether the frequency of monitoring of critical limits at CCP is adequate as evidenced by the actual observation? ☐ Yes ☐ No
34.9. Whether breakdowns and malfunctions are recorded? ☐ Yes ☐ No	34.10. Whether there is a provision to review and revise procedure and frequency? ☐ Yes ☐ No
35. Rodent/Vermin Control Programme	
35.1. Is there any documented procedure for vermin control?	35.2. Whether responsibility has been allocated for this work?

☐ Yes ☐ No	☐ Yes ☐ No
35.3. Who carries out vermin/rodent control programme? ☐ Own Arrangement ☐ Outside Agency	35.4. Whether bait map showing serially numbered bait stations has been provided? ☐ Yes ☐ No
35.5. Whether chemical/rodenticides are approved by the competent authority? ☐ Yes ☐ No	
36. Transportation	
36.1. Is the unit having adequate facilities for transport of raw material and finished products? ☐ Yes ☐ No	36.2. If non-insulated covered vehicles are used for transport of raw material for short distances, whether insulated boxes are provided? ☐ Yes ☐ No
36.3. Are the vehicles insulated/refrigerated? ☐ Yes ☐ No	36.4. Are they constructed in such a way to facilitate easy cleaning and sanitization? ☐ Yes ☐ No
36.5. Is there separate arrangement for cleaning and sanitization of transport vehicles? ☐ Yes ☐ No	36.6. Are the cleaning and sanitation records of the maintained? ☐ Yes ☐ No
36.7. Whether such arrangement creates environmental problems? ☐ Yes ☐ No	36.8. Are the vehicles cleaned and disinfected periodically? ☐ Yes ☐ No
36.9. Whether there is a documented procedure for cleaning the vehicles? ☐ Yes ☐ No	
37. Inspection and Testing	
37.1. Is the establishment having in-house facilities for inspection and testing? ☐ Yes ☐ No	37.2. Is the establishment having separate qualified and competent personnel for conducting physical, chemical and microbiological tests? ☐ Yes ☐ No
37.3. Are there separate technologists for supervision of processing and for conducting laboratory tests? ☐ Yes ☐ No	
ATTACHMENTS	
☐ Site Layout ☐ Process Design Layout ☐ Update List of Food Safety Management System Documents ☐ Water Plumbing (Reticulation) Diagram	

ANNEX B: SPECIFIC PROCESSING AND PRODUCT SPECIFICATION REQUIREMENTS

ANNEX B1: Thermally Processed Low Acid Canned Foods

1. General Requirements

1.1. Title 21 of Code of Federal Regulation Part 113 (21CFR 113)

1.1.1. Thermal processing of Low Acid Canned Foods (LACF) shall comply with the requirements of United States Food and Drug Administration (USFDA) Low Acid Foods Packaged in Hermetically Sealed Containers, Title 21 of Code of Federal Regulation (CFR) Part 113.

1.2. Scheduled Thermal Process

1.2.1. Low acid canned food shall not be prepared in a retort of a particular type in a facility unless:

a) Scheduled process for processing the food(s) has been established by a Competent Process Authority;
b) The licensed operator must file their approved scheduled process with the NFA before processing any new product;
c) NFA shall verify and approve the scheduled process; and
d) Canned product is prepared in accordance with the approved scheduled process.

1.2.2. If the approved schedule process is to be altered, the alterations shall be determined, reviewed and amended by the Process Authority and filed with NFA before implementation.

1.2.3. Products produced during the time of testing for data collection prior to submission to process authority shall not be distributed until and unless verified by the NFA.

1.2.4. Approved scheduled process is restricted to the type of product and its preparation, retort systems and its operation in a given heat treatment facility. Such scheduled process shall not be applied in a different facility unless the heating rate of the product and the retort systems are validated.

1.3. Submission of Scheduled Process

1.3.1. Scheduled processes for low acid canned food shall be filed with the NFA before commercial production takes place. These shall include description of sample parameters, heat penetration readings calculations and others as deemed relevant and necessary.

1.4. Personal

1.4.1. Thermal processing and associated activities shall be performed and supervised only by properly trained and competent personnel.

2. Equipment and Procedures

2.1. Equipment and Procedures

2.1.1. The equipment and procedures used for thermal processing of low acid canned foods shall be designed, operated and maintained to ensure that each can cook cycle is processed in accordance with the approved scheduled process.

2.1.2. The retort operator shall follow the manufacturer's instructions in operating the retort.

2.2. Retort

2.2.1. The retort used for the scheduled process determination shall be specified in the report. If this is not the same retort as will be used for normal production, the heat penetration results must be verified under normal manufacturing conditions before the scheduled process is used to retort the canned product.

2.2.2. Heat shall be distributed evenly throughout the retort under normal operating conditions and shall be confirmed. This may be done either:

a) in conjunction with the actual heat penetration trials, on a specific product. by ensuring that in addition to the product temperature measurement, there are enough exposed thermocouples spaced throughout the retort; or
b) by reference to a prior test where even heat distribution has already been confirmed under similar processing conditions (e.g. retort loading, spacers,).

3. Control of Components, Food Product Container Closure and In-Process Materials

3.1. Container Closures Examination

Checking for Can Closure Defects

3.1.1. The can seaming equipment shall be kept clean, attended and monitored during the operation and cans frequently checked during processing for closure defects and corrective action taken when necessary.

3.1.2. If a seam or closure defect is found upon routine inspection, which would result in a loss of hermetic integrity, all products produced between the discovery of the fault and the last satisfactory check shall be identified and assessed.

3.1.3. Visual external seam inspection of cans from each seaming head must be made before start up and at every 30 minutes of machine operations and recorded.

Teardown Examination of Double Seam Cans

3.1.4. Teardown examination for double seam cans shall be performed by a trained and competent person and records of the results and corrective actions must be kept.

3.1.5. Teardown examination shall be carried out on one can from each seaming head every four hours of operation.

3.1.6. Complete inspection of the double seam should also be made on start-up, after a prolonged shut down and after a severe closing machine shut down.

Inspection and Evaluation of Cans

3.1.7. Cans shall be inspected and evaluated in accordance to Section 7.4.8 of "Inspection of closures", Volume G of "Recommended International Code of Practice for Low-Acid and Acidified Canned Foods" (Second edition 1989) CAC/RCP 23-1979.

3.1.8. Checks shall be carried out by the processor to ensure that the heat treatment has been effective by:

a) incubation tests: +37°C +/- 1°C for 7 days or +35°C +/- 1°C for ten days or an equivalent combination; and
b) incubation tests should be conducted on a representative sample of containers of product from each code. Records of the test must be maintained.

Inspection Frequencies

3.1.9. Inspection of the external seam appearance shall be carried out periodically as indicated in the Table 16 in this Standard.

Table 16.0: External Seam Appearance

Inspection Items	**Inspection Frequency**	**Inspection Sample Size**
Check for: Cut over Cut seam Droops Lips False seams Skids Cracked Plate Code	As frequently as feasible. At least half hourly	One can from each seaming spindle

3.1.10. Inspection of the external seam measurements shall be carried out periodically as indicated in the Table 17.0 in this Standard.

Table 17.0: External Seam Measurements

First Operation		
Inspection Items	**Inspection Frequency**	**Inspection Sample Size**
Thickness Width	At set up and at least after every 4 hours of operation	One can from each seaming spindle
Second Operation		
Width Thickness Countersink	At set up. After adjustments, jams, and change overs. At least 4 hourly	One can from each seaming spindle

3.1.11. Inspection by way of visual assessments after tear down shall be carried out periodically as indicated in the Table 18.0 in this Standard.

Table 18.0: Visual Inspections after Tear Down

Inspection Items	**Inspection Frequency**	**Inspection Sample Size**
Cover Hook Tightness Jumped Seam Cover Hook Drop Pressure Ridge	At set up. After adjustments, jams, and change overs. At least four hourly	One can from each seaming spindle

3.1.12. Inspection of internal seam measurements shall be carried out periodically as indicated in the Table 19 of this Standard.

Table 19.0: Internal Seam Measurements

Inspection Items	**Inspection Frequency**	**Inspection Sample Size**
Overlap Body Hook Length Cover Hook Length Body hook butting	At set up. After adjustments, jams, and change overs. At least 4 hourly	One can from each seaming spindle

Checking for Flexible Pouch Closure Defects

3.1.13. Each hermetic seal of flexible pouches must be visually checked for signs of overlap, holes and other sealing defects specified by the pouch manufacturer and records of inspections held on file.

3.1.14. One sealed pouch shall be subject to a squeeze or similar testing to check the integrity of the seal and records of such testing held on file. The frequency of such testing should be:
- a) on start-up of production and after breaks or breakdowns; and
- b) every half hour after start-up.

3.1.15. A burst or similar pressure test recommended by the pouch and/or sealing manufacturer shall be performed at least every 4 hours and records of such testing held on file.

3.2. Potable Water for Cooling

3.2.1. Water used for cooling containers shall be potable.

3.2.2. If water is made potable by chlorination, it shall show a free residual chlorine content of 1 ppm prior to cooling or a free residual chlorine level of at least 0.2 ppm but not exceeding 1ppm after contact with the cans. This shall be checked and recorded after each cooling cycle.

3.2.3. If water is made potable by any other method, the method shall be verified by the NFA and operated in accordance with manufacturer's recommendations.

3.3. Coding

3.3.1. Each hermetically sealed container shall be marked with an identification code that shall be permanent and visible.

3.3.2. Where the container does not permit the code to be embossed or inked, the label may be legibly perforated or otherwise marked, if the label is securely affixed to the product container;

3.3.3. The required identification shall identify in code the establishment, where packed, the product contained therein, the year packed, the day packed, and the period during which packed.

3.3.4. Coding shall be undertaken within a 24-hour period after cooling.

3.4. Steam

3.4.1. Steam used in direct contact with food or food contact surfaces shall contain no substances which may be hazardous to health or may contaminate the food.

3.4.2. Steam supply to the thermal processing system shall be adequate to the extent needed to ensure that sufficient steam pressure is maintained during thermal processing, regardless of other demands for steam by the plant.

3.5. Post Process Handling

3.5.1. Cooling and drying procedures shall be conducted in a manner to protect against post-process contamination.

3.5.2. After thermal processing, containers of processed food shall not be:
- a) handled while the seams and seals are wet;
- b) handled manually; and
- c) subjected to mechanical shocks until the containers have reached ambient temperature.

3.5.3. Conveyors and other equipment for handling thermally processed containers shall be:
- a) kept clean, disinfected and dry; and
- b) where it is not possible to keep such equipment dry, the equipment shall be sprayed with an appropriate sanitising agent on a continuous or frequent basis during production.

3.5.4. Heat sensitive indicators attached to retort baskets or crates in which containers are thermally processed shall be removed when the containers are removed from the baskets or crates.

3.5.5. If containers remain in the baskets or crates after thermal processing, the activated heat indicators shall be removed, and the production details shall be firmly attached to the basket or crates to indicate that the product has been thermally processed.

3.5.6. Records shall be kept to ensure traceability of each processed lot.

3.6. Storage and Transport of Finished Product

3.6.1. Conditions of storage and transport shall be such that the integrity of the product container and the safety and quality of the product are not adversely affected.

3.6.2. Warm containers shall not be stacked so as to form incubatory conditions for the growth of thermophilic pathogens.

3.6.3. The storage conditions including temperature shall be such as to prevent deterioration or contamination of the product.

4. Production and Process Control

4.1. Product Preparation

Cleaning of Empty Containers

4.1.1. Immediately prior to filling, rigid containers shall be cleaned mechanically by inverting the containers and spraying with a jet of air, water or steam.

4.1.2. Product containers shall never be used within the cannery for any other purpose than packing food.

4.2. Establishing Schedule Process

Test Product

4.2.1. Heat penetration tests for a particular product shall be conducted by determining the cold spot in the product where applicable, and minimum of 2 confirmatory test per product type. Test must represent an actual full production loading.

4.2.2. All intrinsic factors that will affect heat penetration shall be specified, and the range that will be encountered during production determined. Factors shall include where appropriate:

a) viscosity;
b) fill weight/volume;
c) solids ratio (including number of pieces, piece size, constituent ratio);
d) minimum initial temperature;
e) headspace;
f) water activity;
g) vacuum (particularly for flexible packaging); and
h) pH.

4.2.3. Test products shall reflect a 'worst case scenario' in heat penetration terms, of what could be encountered in normal production.

NOTE: *For example, a test product with high solids content, high viscosity and low initial temperature.*

4.2.4. Measurements of the variables used for the test products for heat penetration tests shall be recorded.

Calculation of the Thermal Process

4.2.5. Results from the slowest heating curve of the test products shall be used for calculation of the F_o value.

NOTE: *F_o is the value of lethality expressed in terms of equivalent time in minutes at the temperature of 121 ^{0}C that is delivered by the heat sterilizing equipment.*

4.2.6. A minimum F_o value of 3.0 minutes is required at 121.1^{0}C to ensure destruction of *C. botulinum spores.*

Scheduled Thermal Process Designed from Simulated Manufacturing Conditions

4.2.7. Where a scheduled thermal process is designed from simulated manufacturing conditions, the results shall be verified in the actual production thermal processing equipment under commercial operating conditions before the scheduled thermal process is used to prepare canned products for distribution.

4.2.8. Heating and cooling curves from all the test products, the retort thermocouple temperature, together with retort temperature (and pressure where overpressure is used) as measured by the standard instrumentation shall be recorded.

4.2.9. Any process data for preheating carried out in the retort shall be recorded.

4.2.10. The stacking pattern of the containers in the retort shall be specified.

4.2.11. Any product rotation, or product transport speeds shall be recorded.

4.3. Operation in Thermal Process Rooms

Commencement of Thermal Processing

4.3.1. Thermal processing shall be started as soon as possible after can seaming, with a maximum delay of only 2 hours post seaming to avoid microbial growth or changes in the heat transfer characteristics of the canned food.

4.3.2. In order to ensure that the heat processing of the canned fish is adequate, the temperature and pressure of the retort shall be constantly monitored during thermal processing.

Baskets or Crates Marked with a Heat Sensitive Indicator

4.3.3. In lot operations, at least one of the cans on top of each retort basket or crate shall be plainly and conspicuously marked with a heat sensitive indicator.

Initial Product Temperature before Sterilization

4.3.4. Low acid canned food shall not be processed unless the temperature of the contents of the coldest can is equal to or higher than the minimum temperature specified in the scheduled process before thermal processing.

4.3.5. Sauces or oils should be maintained at a temperature above a minimum initial temperature specified within the approved scheduled thermal process to provide free flowing consistency and prevent bacterial growth and be provided with a suitable means of maintaining and recording of this temperature.

4.4. Deviation in Processing, Venting and Control of Critical Factors

4.4.1. The establishment where low acid canned food is prepared for distribution shall take corrective action within 24 hours of any deviation from critical factors or similar from the scheduled thermal process approved in relation to the food and maintain records.

4.4.2. The deviation shall be assessed and shall be in accordance with procedures recognised by NFA. These procedures shall be adequate to detect any potential hazard(s) to public health. Records of evaluation procedures and results shall be made available and kept on file.

4.4.3. All process deviations involving a failure to satisfy the minimum requirements of the scheduled process, including emergencies arising from jam or breakdown of a continuous agitating retort, necessitating cooling the retort for repairs, shall be recorded with details of the deviations and corrective actions taken.

4.4.4. There must be evaluation of deviation in heat processing whenever the in-process monitoring records, processor check or other means disclose that a low acid canned food has received a sterilization treatment less than that stipulated in the scheduled process, the processor shall:

a) Identify, isolate and then reprocess to commercial sterility that part of the cook cycle involved and retain complete reprocessing records; or
b) Isolate and retain that part of the cook cycle involved to permit further detailed evaluation of the heat processing records.

5. Outsourced Production

In cases where the manufacturer decides to outsource manufacturing of a specific product type shall comply with the following requirements:

5.1. Notice of intention shall be filed with NFA prior to commercial production and must contain the following information:

a) details of product type;
b) name of the intended manufacturer;
c) location of the intended manufacturing facility;
d) product coding and traceability; and
e) schedule process.

5.2. Application of Scheduled Process shall meet the requirements in Annex B2.2 of this Standard**.**

5.3. Ensure compliance with coding requirements in Annex B3.3.

5.4. Shall comply, where applicable, with labelling requirements in Part 1 under section 11.5.3 of this standard.

6. Records and Reports

6.1. Processing and Production Records

6.1.1. Complete records including data concerning all aspects of the determination of an approved scheduled thermal process, including any associated incubation tests, heat penetration of the can data and temperature distribution within the thermal processing equipment, including retort survey shall be retained at the processing plant for as long as the scheduled thermal process is used and for purpose of verification by NFA.

6.1.2. Records of the application of scheduled thermal processes and venting procedures used for each cook cycle shall be kept concerning each load. These records shall include:

a) processed food name and pack style;
b) permanent and legible dated records of time, temperature;
c) the thermal processing date, lot/batch identification number and product code;
d) the retort temperature recorder chart identification number;
e) the container size and types;
f) the approximate number of containers per code lot;
g) the minimum initial temperature;
h) the scheduled and actual processing time and temperature;
i) the mercury in glass (Temperature Indicator Device) and recorder thermometer readings;
j) other critical factors specified in the scheduled process;
k) results of regular production checks of cans for closure defects and corrective action taken;
l) calibration records of sensors, gauges and validation runs;
m) heat sensitive indicators;
n) results of teardown examinations for double seam cans and corrective action taken shall be kept for each lot be retained at the processing plant for not less than 3 years;
o) closing vacuum (in vacuum-packed products);
p) records of water safety; and
q) other pertinent details.

ANNEX B2: Canned Fish and Fishery Product

Application
This section shall be applied to processing of scrombroid species into canned fish products.

1. Process Control and Description

1.1. Raw Material On Arrival at Processing Plant

1.1.1. Internal temperature of each batch should be measured and shall include:

a) the core temperature of fresh raw material should be near the temperature of melting ice, however subject to the time period from harvest, transport, to the arrival at the plant, having as target temperature of 0ºC is sufficient; and
b) the core temperature of frozen raw material should be below -18ºC, although fluctuations are accepted under certain conditions identified on the section related with transport of frozen materials; or -9ºC in case of brine frozen fish for canning processing purposes.

1.1.2. Samples of fish should be selected from each batch for:

a) organoleptic analysis of decomposition smell and appearance of raw fish;
b) decomposition odors and flavour of the cooked flesh, as an indicator of histamine development; and
c) observation for the presence of honeycombing in cooked tuna loins (is a valuable means of screening for fish that have been exposed to the kinds of temperature abuse that can lead to histamine development).

NOTE: *The above controls focus on the fact that Histamine is more commonly the result of high temperature spoilage than of long-term, relatively low-temperature spoilage, which is commonly associated with organoleptically detectable decomposition.*

1.1.3. To prevent histamine development, it is essential that histamine developing fish which are exposed to air or water temperatures above 28°C shall be placed in ice, or in refrigerated seawater, ice slurry, or brine < 4.5°C, as soon as possible after harvest, in less than 6 hours from the time of death. In the case of Tuna which are unique among fish because they maintain a body temperature several degrees above the temperature of the surrounding sea water this represents a potentiating factor. This internal temperature adds significantly to the heat load, particularly when large catches of skipjack tuna are stored. In addition, large quantities of fish captured in a single fishing set, such as those captured on a purse seiner, may exceed a vessel's ability to rapidly chill the fish. As this all happens at the fishing vessels, it is essential for the establishments to keep track of the latter conditions, in particular of:

a) when did the fish die?
b) when was it preserved following the required conditions?
c) was is it kept during storage and transport also following the conditions? Did it suffer time –temperature abuse?

To this end it is essential a control at the establishment of the fishing vessel and transport log records regarding the above conditions.

1.1.4. If considered necessary, an analysis of total volatile basic nitrogen (TVBN) as an indicator of freshness prior to freezing can be performed.

1.1.5. Sampling for decomposition detection: 118 fish per lot; or all fish in the lot if less than 118 fish; for being able to determine a 2.5% decomposition level as critical limit.

NOTE: *The amount of sampling required shall accommodate the wide variability of distribution of factors (fish species, fish size, harvest records, storage holds, temperature vessel controls, and for testing analysis also the outcomes of temperature and sensory controls at receiving).*

1.1.6. Sampling for histamine testing:

a) shall not be fewer than 18 samples per lot, unless the lot contains less than 18 fish;
b) a sample shall be collected from each fish;
c) no more than three samples should be composited. The analytical method and instrument used shall be capable of reliably detecting histamine at the lower levels that are necessary for composited samples;
d) testing limits shall target, 17 ppm histamine in a three-sample composite, or 50 ppm in an un-composited sample; and
e) in large scombrotoxin-forming fish, the lower, anterior (forward) portion of the fish loin (not the belly flap) is likely to provide the best information about the histamine content of the fish.

NOTE: *Combination of multiple measures and indicators of conditions that can lead to histamine formation, such as sensory examination and internal temperature measurement, with histamine testing can provide better assurance of product safety.*

1.1.7. All tests and analyses, whether physical or chemical, should be repeated before utilization of the raw material, if it is stored for more than one month.

1.1.8. The quality control manager shall indicate his approval of the batch, based on the results of the above tests. He or she shall sign an inspection form and assign a lot code to the fish before the commencement of processing.

1.2. Process Control

Process Lag-time Control - Regarding Scombrotoxin-forming fish

1.2.1. Scombrotoxin-forming fish that have not been previously frozen or heat processed sufficiently to destroy scombrotoxin-forming bacteria shall not be exposed to temperatures above 4.5°C for:

a) More than 4 hours, cumulatively, if any portion of that time is at temperatures above 21°C; or
b) More than 8 hours, cumulatively, as long as no portion of that time is at temperatures above 21°C.

1.2.2. Scombrotoxin-forming fish that have been previously frozen, or heat processed sufficiently to destroy scombrotoxin-forming bacteria and are subsequently handled in a manner in which there is an opportunity for recontamination with scombrotoxin-forming bacteria (e.g., contact with fresh fish, employees, or introduction of raw ingredients), shall not be exposed to temperatures above 4.5°C for:

a) More than 12 hours, cumulatively, if any portion of that time is at temperatures above 21°C; or
b) More than 24 hours, cumulatively, as long as no portion of that time is at temperatures above 21°C.

Cooking

1.2.3. Each cooker shall be equipped with a time and temperature measuring device.

1.2.4. Time and temperature measuring device shall be capable of generating permanent records for each batch cycle.

1.2.5. Heat Distribution test shall be conducted on each cookers and appropriate operating instructions must be in place for the initial startup of the cooker, and must be operated by a trained and competent person.

1.2.6. Heat Penetration test shall be undertaken for all sizes of fish and appropriate cooking schedule be developed. Consideration be given to the most heat resistant micro-organisim and its thermal destruction properties. For scromboid species, such calculations shall take into consideration the destruction of histamine forming bacteria Morganella morganii by application of 5D process to achieve commercial sterilization (lethality) of 0.26 minutes.

1.2.7. Cooker operators shall be trained and supervised by a competent person(s).

1.2.8. Frozen raw materials shall be completely thawed before loading into the cookers, and thawing times shall be calculated on the basis of fish size to ensure that there is minimum delay between the end of thawing and the start of cooking.

1.2.9. The cooking time-temperature process shall be applied, having an evident control and register procedure. It shall be set-up focusing on the relevant related food safety hazards.

1.2.10. The fish shall be allowed to cool completely before subsequent handling, to minimize physical damage.

Fish Cleaning

1.2.11. The removal of the head, skin, viscera and bones of pre-cooked fish shall be carried out as soon as the fish is cool, and these waste materials should be removed immediately from the work tables to minimize contamination of the product.

1.2.12. High levels of hygiene shall maintained at the tables and machinery where fish is cleaned. Tables and equipment should receive an additional cleaning and disinfection at regular intervals and during breaks.

1.2.13. The quantity of fish held on the work tables shall be kept to a minimum.

1.2.14. Fish shall be cleaned rapidly, to minimize the lagtime until before subsequent retorting.

Sauce preparation

1.2.15. Any area used for the preparation of the sauces to be added to the canned fish shall be provided with a suitable ventilation system for the elimination of steam.

1.2.16. Prepared sauces or oils shall be maintained at a temperature above 65°C in order to maintain a free flowing consistency and prevent the growth of bacteria. Storage tanks for prepared sauces shall therefore be provided with heating to maintain this temperature.

1.2.17. Ingredients used in sauce preparation shall be in line with approved product formulation.

Can sealing / seaming

1.2.18. The delay between can filling and subsequent sealing shall be kept to a minimum, in order to minimise the fall in temperature of the contents or rise in case of single-cook natural.

1.2.19. Can sealing / seaming equipment shall be kept clean and in good condition. The equipment shall always be attended and monitored during operation.

1.2.20. The can sealing machinery shall always be adjusted by a qualified engineer, so that the parameters of the double seam remain within safe limits. A visual check should be made every 30 minutes and a series of samples should be taken every four hours during use, in order to measure the double seam parameters.

1.2.21. The double seam should be monitored at least every two hours of production. A series of samples should be taken and, at the minimum, the following parameters measured shall be in line with seaming parameters specified in Annex B3.1 of this Standard.

1.2.22. If any defects are observed in the formation of the double seam, or the structure of the can, the process should be stopped immediately, for further sampling and for adjustment of the can seaming machinery.

Can washing

1.2.23. Cans shall be washed after filling and sealing.

1.2.24. Cans may be washed manually or by machine. In all cases only potable water should be used.

1.2.25. If washing tanks are used, these shall be previously filled with water to absorb the shock of any fall, and possible damage to the cans.

1.2.26. Can washing tanks shall possess a means of drainage.

1.2.27. When filling trolleys with cans, prior to washing or passing to the retort, a means of breaking the impact of the fall should be employed to prevent damage to the cans. However, the use of a wooden ramp is not permitted.

Retorting

1.2.28. The retorting shall be subject to specific control of each of the retorting cycle parameters and incubation and sterility checking.

1.2.29. At least once every 6 months all thermometers and pressure gauges on the retorts should be calibrated, using high precision equipment. Every year, this equipment in turn should be calibrated against external standards.

1.2.30. Quality control staff shall ensure that the correct lot code is applied to the finished product.

2. Style of Presentation (Canned Tuna)

2.1. If canned tuna is declared as "skin off" (or words of similar meaning) in the trade description, the tuna shall be practically free of skin.

2.2. Canned tuna shall if declared in the trade description as:

a) white meat-not contain any red muscle known as dark meat; or
b) dark meat-be practically free from white meat.

3. Ingredients and Additives

3.1. All ingredients and additives added to fish and or fishery products shall be prepared so as not to present a risk to consumers and shall:

a) not exceed the limits specified under section 10.5.6 of this Standard or Codex, Vol. XIV, "Food Additives" First Edition, 2002;
b) meet the importing countries requirements; and
c) the amount of polyphosphate and related compounds expressed as P_2O_5 shall not exceed 5 g/kg.

4. Evaluation of Cans

4.1. A can shall be sound when inspected and evaluated in accordance to ANNEX B3.1 of this Standard with the methods specified in Inspection of closure and in "Recommended International Code of

Hygiene Practice for Low- and Acidified Low-acid Canned Foods" (Revision 2, 1993) CAC/RCP 23-1979 of Codex.

5. Product Specifications for Canned Mackerel

5.1. Without limitation to the generality of the Codex Standard on canned fish, the following specific product requirements for canned mackerel shall apply -

a) canned mackerel are products consisting of the flesh of any one of the fish genera commonly identified as mackerel including, but not limited to, members of the genera Scomber and Scomberomorus and species Pneumatophorus diego and Auxis thazard and are packed in hermetically sealed containers and have received a processing treatment sufficient to ensure commercial sterility;
b) the product shall be prepared from sound mackerel from which the heads, tails and viscera have been removed;
c) the name of the packing medium (water, oil or other) shall form part of the name of the food and shall not be misleading;
d) if the fish has been smoked or smoke flavoured and or other, this information shall appear on the label;
e) the product shall be free of organisms capable of growth under normal storage conditions of the country; and
f) the product shall be free from container integrity defects which may compromise the hermetic seal.

5.2. In addition to the requirements specified in ANNEX B2 5.1 of this Standard, canned mackerel with more than one sample unit in a lot or consignment should not have any of the following characteristics:

a) are affected by persistent and distinct objectionable odours or flavours indicative of decomposition or rancidity;
b) contain excessively mushy or tough ingredients that are not normally the characteristic of the product;
c) are affected by discolouration indicative of decomposition or rancidity or by sulfide staining of more than 5% of the fish by weight; or
d) are affected by struvite crystals greater than 5 mm in length.

6. Brine Frozen Fish

6.1. Any fish or fishery product that was first brined during harvest and capture must always be labelled as brine frozen fish throughout the supply chain.

ANNEX B3: Handling of Molluscan Shellfish and Depuration

1. Shellfish Harvesting and Depuration

1.1. Shellfish after harvest shall be stored and handled before depuration in a manner that does not adversely affect their physical activity or allow their bacterial quality to deteriorate.

1.2. Shellfish that are dead, damaged or gaping shall not be depurated.

1.3. Shellfish shall be clean and practically free from mud and weed prior to depuration.

1.4. Shellfish from more than one growing area shall be kept separate during washing, culling and packing.

1.5. Areas used for depuration shall be approved by the competent authority and boundaries of the sites shall be clearly identified by buoys, poles or fixed means. There shall be a minimum distance of 300 meters between depuration areas and also between depuration areas and production areas.

1.6. Sites between depuration areas shall be well separated to prevent mixing of batches. Sites shall only be used for one batch at a time.

1.7. Shellfish shall be depurated in seawater for a time exceeding the period required to reduce the faecal bacterial load so as to meet the product standard in ANNEX B3 3.1a(i) of this Standard.

1.8. Water used for depuration shall be:

a) maintained within the range +15 to +25^{o}C;
b) be practically free from turbidity or suspended silt load and bacterial pathogens as stated in ANNEX B3 6.1(e) of this Standard.
c) of a salinity, dissolved oxygen level and pH necessary for the normal functioning of the fish at any point in the tank and in no case shall the dissolved load be less than 50% of saturation.

1.9. During depuration there shall be a complete re-circulation of water in the tanks every 30 minutes and:

a) the water shall not be used for more than one 36 hour cycle; and
b) the tank shall be of a flow through design.

1.10. Water circulation shall be such as to ensure adequate cross circulation of the tank.

1.11. Depurated shellfish may be stored in depuration tanks for up to 5 days provided no other shellfish are introduced.

1.12. A person shall not place shellfish from different approved harvesting areas into the same depuration tank.

1.13. Crustaceans, fish or other marine species shall not be kept in the depuration tank where shellfish are undergoing depuration.

1.14. Water circulation and sterilisation shall be maintained as long as fish remain in the tank and shall allow shellfish to resume filter-feeding, remove sewerage content, not to be re-contaminated and be able to remain alive after depuration for packaging, storage and transport before being placed on the market.

1.15. The maximum capacity for a depuration tank shall not be exceeded. Shellfish shall be evenly distributed throughout the depuration tank to ensure maximum water circulation and at a density that will ensure the shellfish are permitted to open and undergo depuration. Containers, if used, shall ensure clean seawater is able to flow through levels of shellfish and not impede their opening.

1.16. Shellfish shall be depurated for at least 36 hours and if any interruption occurs the process shall be restarted.

1.17. Following depuration:

a) shellfish shall be washed thoroughly by hosing with potable water or clean seawater (this may occur in the same depuration tank and washing water shall not be re-circulated);
b) all fish shall be protected from contamination and deterioration; and
c) shellfish held at a temperature no higher than +10^{o}C.

1.18. Any breakdown of depuration equipment shall be recorded.

1.19. Batches to be depurated and those transported after depuration shall only be accepted if they are accompanied by the document referred to in 1.21 of ANNEXB3 of this Standard.

1.20. Permanent records shall be maintained of the source, depuration time, and destination after depuration of batches by operators of the depuration facility.

1.21. Depuration Facilities shall ensure the following records are kept:
- a) microbiological tests of purification water system;
- b) microbiological tests of un-depurated shellfish;
- c) microbiological tests of depurated shellfish;
- d) dates and quantities of shellfish delivered to depuration centre;
- e) the times of filling and emptying of depuration (depuration time); and
- f) dispatch details of batches after depuration.

1.22. Packages containing depurated/purified shellfish shall be accompanied by a label certifying the fact.

1.23. Transport or further processing shall occur in accordance with this Standard.

2. Handling of Molluscan Shellfish

2.1. Handling of molluscan shellfish shall be carried out in accordance with the Codex "International Recommended Code of Hygienic Practice for Molluscan Shellfish, CAC/RCP 18-1978 volume 9".

3. Reception

3.1. The operator shall only accept molluscan shellfish if the operator has confirmed that the shellfish meets the following requirements:
- a) have been harvested from the competent authority approved growing areas that meet the following criteria;
  - i) Live bivalve molluscs from these areas must not exceed, in 90% of the samples, 4 600 *E. coli* per 100g of flesh and intervalvular liquid. In the remaining 10% of samples, live bivalve molluscs must not exceed 46 000*E. coli* per 100 grams of flesh and intervalvular liquid;
- b) have organoleptic characteristics associated with freshness and viability, including shells free of dirt, an adequate response to percussion and normal amounts of intervalvular liquid;
- c) must not contain marine biotoxins in total quantities (measured in the whole body or any part edible separately) that exceed the following limits;
  - i) for paralytic shellfish poison (PSP), 800 micrograms per kilogram,
  - ii) for amnesic shellfish poison (ASP), 20 milligrams of domoic acid per kilogram,
  - iii) for okadaic acid, dinophysistoxins and pectenotoxins together, 160 micrograms of okadaic acid equivalents per kilogram,
  - iv) for yessotoxins, 3.75 milligrams of yessotoxin equivalent per kilogram, and
  - v) for azaspiracids, 160 micrograms of azaspiracid equivalents per kilogram.
- d) the competent authority approved shellfish harvesting records are available and complete;
- e) the containers are labelled correctly in accordance with the competent authority requirements;
- f) the containers are of an appropriate hygienic status;
- g) the molluscan shellfish are alive, and not damaged, and the shells are reasonably free of mud, marine flora, bottom sediments and detritus, and not contaminated by material potentially hazardous to human health; and
- h) temperature control requirements as defined by the competent authority have been complied with.

3.2. If the records referred to in section3.1, clause (d) above or labelling referred to in section 3.1, clause (e) above in ANNEX B3 of this standard is incomplete or missing, the molluscan shellfish may only be accepted into the approved and licensed establishment if:
- a) the molluscan shellfish is kept separate from other shellfish;
- b) the competent authority inspectors are notified of the non-compliance within 24 hours of the arrival of the molluscan shellfish; and
- c) the molluscan shellfish is detained under refrigerated storage until the competent authority inspector has determined the disposition of the shellfish.

3.3. If molluscan shellfish has not been grown, harvested, handled, and transported according to the competent authority requirements, and the operator prohibits the shellfish from entering the establishment, the operator must advise the competent authority inspector of that within 24 hours after imposing the prohibition.

4. Depuration of Bivalve Molluscan Shellfish

4.1. Licensed operator carrying out depuration must only receive shellfish that comply with the reception requirements given in section 3.1 of ANNEX B3 of this standard.

4.2. The maximum level of faecal coliforms in shellfish entering a depuration plant must be established by the operator and must not exceed 3000 faecal coliforms per 100 gram of flesh, unless the competent authority confirms that the depuration system can manage higher levels.

4.3. Different shellfish species must not be processed in the same unit unless it can be scientifically proven that the depuration requirements for each species are compatible.

4.4. The depuration time must be established and must be no less than 48 hours unless it can be scientifically proven that the depuration plant performance specifications set out in Table 20.0 of ANNEX B3 of this Standard will consistently be met using shorter depuration times, with a minimum depuration time of 36 hours as this is a critical control point.

4.5. The procedures to be undertaken when unplanned events occur during depuration must be documented in the approved HACCP plan including:

a) if spawning occurs to the extent that the water quality criteria in 6.1 of ANNEX B3 of this Standard or the criteria for turbidity or dissolved oxygen, are not met in the units during depuration, the process must be stopped and;
    i) the tanks drained, and the shellfish removed and returned to the sea or otherwise disposed of, or
    ii) the process started again at zero hour and, on completion of the process, a minimum of three end-point shellfish samples taken and tested for faecal coliforms; and
    iii) shellfish from the restarted process must not leave the plant until the sample results demonstrate that the depuration plant performance specifications Table 20 of ANNEX B3 of this Standard are complied with.
b) If spawning is observed in less than 10% of the shellfish;
    i) required standards of water quality with respect to turbidity and dissolved oxygen continue to be consistently met throughout the tank, and
    ii) the requirements of section 6.1 of ANNEX B3 of this Standard are met, then the depuration process may continue, but a minimum of three end-point shellfish samples must be taken and tested for faecal coliforms. The shellfish must not leave the plant until the sample results are available and the results demonstrate that the depuration plant performance specifications set out in Table 20 of ANNEX B3, and section 6.1 of ANNEX B3 of this Standard have been complied with.

5. Depuration Process Water: Seawater Supply

5.1. The operator must treat process seawater on a continuous basis with an adequate disinfection system, including confirming that the disinfection system produces process seawater with no detectable coliform organisms according to the following:

a) if the source water is from an approved growing area that is open for harvesting, or other source acceptable to the regulatory enforcement authority and or the competent authority, the depuration tank influent treated by each disinfection unit must be tested at least once per process batch; and
b) source water must not be taken from a prohibited growing area.

6. Depuration Process Water: Water Quality Parameters

6.1. The process water used in the depuration process must meet the following:

a) physical, chemical and microbiological parameters required for the health and normal physiological activity of the shellfish;
b) a minimum of 5.0 mg/l of dissolved oxygen in the water must be maintained throughout the depuration system;
c) treated water at the point of entry into the depuration unit must contain no detectable coliform organisms;
d) the salinity and temperature parameters must be established in the HACCP plan;
e) maximum turbidity levels of the process water treated by ultraviolet disinfection must not exceed 5 nephelometric turbidity units (NTU);
f) the pH of the water must be in the range 7.0–8.4; or
g) if process water is re-circulated, the process water must be changed between each depuration batch.

6.2. The depuration plant must have on site or at a readily accessible designated place calibrated equipment to measure the following:

a) dissolved oxygen;
b) pH;
c) temperature;
d) turbidity;
e) salinity; and
f) flow rate.

6.3. The flow rate of process water in each tank must be a minimum of 107 l/min/m3 of shellfish unless the HACCP plan provides a lesser flow rate.

6.4. The minimum volume of process water in each depuration unit must be:
   a) for cockles and oysters, 6400 l/m3 of shellfish based on the total tank capacity, unless the HACCP plan provides for a lesser volume; and
   b) for other shellfish species, as provided for in the HACCP plan.

7. Shellfish Storage

7.1. Shellfish that require depuration must not be held in the same storage room as shellfish that have been depurated or which do not require depuration unless the method of storage, marking, and labelling is documented in the HACCP plan.

8. Depuration Unit: Loading and Unloading

8.1. Trays or containers used in the depuration process must be impervious, easily cleaned and designed to allow adequate water flow through the mesh.

8.2. Trays or containers used in the depuration process must not be used for purposes other than depuration.

8.3. When oysters are depurated, there must not be more than three layers of oysters in each tray or container during the depuration process. The maximum depth for other shellfish species must be as documented in the HACCP plan.

8.4. Shellfish in depuration units must have a minimum cover of 50 mm of water, and the shellfish must be not less than 25 mm off the base of the unit.

8.5. To minimise the risk of contamination of shellfish during the loading and unloading of depuration units:
   a) all the trays of shellfish must be placed in the depuration units before filling of the units with water commences; and
   b) shellfish must not be moved within or removed from the depuration units until all the water has been drained from the depuration units.

9. Cleaning and Sanitising Plan and Equipment

9.1. All shellfish and seawater contact surfaces in the depuration unit must be cleaned and sanitised after each use or at the following frequencies:
   a) process units, trays, containers, and racks must be cleaned, sanitised, and rinsed before each depuration operation;
   b) the process unit, including the depuration system piping network, must be cleaned and sanitised at least once a week or once every 3 depuration operations;
   c) the seawater storage tanks must be cleaned and sanitised at least once a week or once every 3 depuration operations or at an alternative frequency specified in the HACCP plan;
   d) the washing and culling areas and pre-depuration storage areas must be thoroughly washed and sanitised after each use; and
   e) disinfection unit(s) for the water supply must be cleaned and serviced as frequently as necessary to assure effective water treatment.

10. Depuration Process Operator Verification

10.1. The operator verification must be performed on the depuration process on a continuous basis in accordance with the following:
   a) on completion of the depuration, collect and test at least 1 sample from each lot of shellfish depurated in the unit;
   b) determine daily, or as results become available, the depuration performance indices defined as the geometric mean and the 90th percentile of faecal coliforms from test data of the most recent 10 consecutive harvest lots for each species depurated; and
   c) compare daily, or as results become available, the depuration performance indices with the depuration plant performance specifications set out in Table 20.0 of ANNEX B3 of this Standard;

Table 20.0: Depuration Plant Performance Specifications (faecal coliforms per 100 gms)

Species	Geometric mean	90^{th} percentile
Hard clams	20	70
Oysters	20	70
Mussels	20	70

   d) if the depuration performance indices for a specific species from a specific growing area are less than or equal to the depuration plant performance specifications set out in Table 20.0, the process is considered confirmed for that species from that growing area;
   e) if the depuration performance indices for a specific species from a specified growing area fail to meet the depuration plant performance specifications set out in Table 20.0, or if a new restricted growing area is used as a source of shellfish for depuration, or if a new

depuration process has generated less than 10 process batches of data, the process is considered to be not confirmed and the following must be met;

i) the operator must collect and test at least one zero hour and 3 endpoint samples from each depuration lot, and
ii) the environmental parameters impacting on poor plant performance (including water temperature, salinity, dissolved oxygen, turbidity and/or other operational conditions that may inhibit the normal physiological processes of the shellfish), must be identified. The condition(s) once identified and quantified, become critical control points (CCPs) for the specific species in the specific plant, and the HACCP plan must be amended.

f) shellfish which are depurated during the process in paragraph (e) must meet the following criteria before they are released to the market, namely, the faecal coliforms geometric mean from 3 samples (hard clams, mussels, or oysters) must not exceed 45 faecal coliforms per 100g, and no single sample is to exceed 100 faecal coliforms per 100g;
g) if the depurated lot fails to meet the release criteria specified in paragraph (f), the operator may choose to subject the shellfish to additional depuration processing and after that the shellfish can be resampled for release criteria;
h) when depuration units with multiple tanks are used, it must be determined whether the individual tanks are similar. The difference between the physical tank dimensions and process water flow rate must be less than 10%;
i) if tanks are not similar, the process requirements described in paragraphs (a) to (g) must be employed for each tank;
j) the operator must ensure that all microbiological tests of performance standard samples of shellfish;
    i) are analysed in accordance with the laboratory requirements stated in the shellfish regulated control scheme,
    ii) the sample size consists of at least 12 shellfish selected at random from each designated container, and
    iii) samples are collected at locations within the depuration unit that are considered to be the most compromised in relation to shellfish activity, based on the sampling plan contained in the HACCP plan.

11. Minimum Requirements of Depuration/Wet Storage Operation

11.1. The following requirements must be addressed in the HACCP plan:

a) detailed design of a depuration/wet storage unit, including;
    i) a depuration/wet storage tank diagram showing tank dimensions, construction details, influent and effluent locations, operating water level and typical container configuration,
    ii) the process water system describing the type of system (flow through or recirculating), pre-treatment and filtration systems, disinfection system, and hydraulic schematic, and
    iii) a list of equipment including washing, culling, and packing equipment, material handling equipment, and cleaning and sanitation equipment.
b) depuration process/wet storage monitoring, including;
    i) sampling plans showing frequency, number of samples, sampling locations, methodologies for analysing process water, incoming shellfish, depurated/wet stored shellfish, and source waters,
    ii) maintenance of monitoring equipment and calibration procedures, and a copy of activity log forms that will be used for data entry,
    iii) process water monitoring frequency and criteria for physical and chemical parameters, and
    iv) data analysis and evaluation.
c) laboratory arrangements; and
d) standard operating procedures for;
    i) washing, culling, and placement of shellfish in depuration/wet storage tanks,
    ii) the depuration/wet storage unit operation,
    iii) monitoring of the depuration/wet storage unit operation,
    iv) removal of product from tanks after depuration/wet storage,
    v) storage parameters and procedures,
    vi) packing and labelling procedures,
    vii) plant cleaning and sanitation,
    viii) data analysis,
    ix) recall procedures, and
    x) ultraviolet water treatment.

ANNEX B4: Cooked, Smoked, Salted and Mechanically Recovered Fish and Fishery Products

1. Cooked Products

1.1. Facilities for cooked products shall ensure:

a) that the core temperature of the product while cooking reaches a scientifically validated time/temperature that ensures adequate control of the pathogen(s) in question; and
b) that any cooking is followed by rapid cooling. Water used for this purpose shall be potable and if no other preservation is used, cooling shall continue until the temperature approaches that of melting ice.

1.2. Post cooking process steps for cooked products shall identify *Staphylococcus aureus* toxin as a potential hazard and adequate time temperature control supported by GHP and personal hygiene shall be a part of the HACCP programme to ensure:

a) products processed and held at room temperature of above 21°C shall not exceed maximum of 3 hours; and
b) in case of a delay in processing, products shall be cooled to a temp of 4.4^0 C or cooler as rapidly as possible.

1.3. If cooked products are subjected to glazing prior to freezing the glazed water shall be potable and at a temperature close to that of melting ice.

1.4. Cooked products, ready-to-eat shall comply with the microbiological specification of this Standard and with any of the importing countries legislation.

2. Smoked and Dried Products

2.1. Materials used to produce smoke and heat shall be stored away from the place of smoking and be used in such a way that they do not contaminate products.

2.2. Materials used to produce smoke and heat shall not have undergone any chemical treatment such as preservation, varnishing, pesticide treatment, be painted or glued; and after smoking, products shall be cooled rapidly to a temperature required for preservation before packaging.

2.3. *Clostridium botulinum* shall be identified in reduced oxygen packed products as a potential hazard and products shall be stored below 3°C immediately after smoking and packing.

3. Salted Products

3.1. Salting operations shall take place in a different premise and be sufficiently removed from other parts of the premises where other operations are carried out.

3.2. Salt and other ingredients used shall be stored so as to preclude contamination and once used shall not be re-used.

3.3. Containers used for salting or brining shall be cleaned before use and constructed so as to preclude contamination during the process.

3.4. Salt used shall be food grade and free from biological, chemical and physical hazards at the time of use. Records such as a certificate of analysis and supplier guarantee may be used as evidence of suitability for its use.

4. Brined Products

4.1. The brine freezing operation shall take place in different premises and sufficiently removed from areas where other operations are carried out.

4.2. The salt used in the operation shall be clean and stored in such a way to preclude contamination. It must not be reused.

4.3. The container used for brining must be constructed in such a way to avoid contamination and must be clean prior to use.

4.4. Potable water or clean seawater must be used for the preparation of brine.

4.5. Ratio of brine to fish and the concentration of the of the brine must be adjusted to the desired product.

5. Mechanical Separation of Fish Flesh

5.1. The raw materials used shall satisfy the following requirements:

a) only whole fish and bones after filleting may be used to produce mechanically separated fishery products; and
b) all raw materials must be free from guts.

5.2. The manufacturing process must satisfy the following requirements:
   a) mechanical separation must take place without undue delay after filleting;
   b) if whole fish are used, they must be gutted and washed beforehand; and
   c) after production, mechanically separated fishery products must be frozen as quickly as possible or incorporated in a product intended for freezing or a stabilising treatment.

5.3. The cleaning and washing of the equipment and machinery shall satisfy the following:
   a) shall ensure that the machinery shall be cleaned and washed frequently but at least every two hours; and
   b) the procedure for cleaning and sanitising shall be well documented, monitored, verified and the records of the same shall be maintained.

6. Mechanical separated fishery products

6.1. Only whole fish and bones after filleting may be used to produce mechanically separated fishery products.

6.2. All raw materials must be free from guts.

6.3. Mechanical separation must take place without undue delay after filleting.

6.4. If whole fish are used, they must be gutted and washed beforehand.

6.5. After production, mechanically separated fishery products must be frozen as quickly as possible or incorporated in a product intended for freezing or a stabilising treatment.

7. Cooking crustaceans and molluscs

7.1. The pasteurization time-temperature process shall be applied, having an evident control and register procedure.

7.2. Rapid cooling must follow cooking.

7.3. If water is used for cooling it shall be potable water. If no other method of preservation is used, cooling shall continue until a temperature approaching that of melting ice is reached (0ºC).

7.4. Shelling or shucking shall be carried out hygienically, avoiding contamination of the product. Where such operations are done by hand, workers must pay particular attention to washing their hands.

7.5. After shelling or shucking, cooked products shall be frozen immediately (at temperature not more than -18°C), or be chilled as soon as possible to temperature approaching that of melting ice.

8. Special Treatment

8.1. Products treated with gases such as carbon monoxide (CO) shall be prohibited for export to countries where this treatment is prohibited.

ANNEX B5: Frozen Vacuum-Packed Fish and Fishery Products

1. Requirements

1.1. Establishments intending to export vacuum packed fish and fishery products shall have the necessary facilities for the purpose. Vacuum packing shall be done under the supervision of a trained operator.

1.2. A well designated area separate from other activities shall be marked for the process of vacuum packing.

1.3. The packing material used for vacuum packing shall ensure the quality and safety of the product.

1.4. The operation of packing shall be done as rapidly as possible and the packed product shall be brought down to a temperature approaching that of melting ice as quickly as possible to prevent the growth of *Clostridium botulinum* spores.

1.5. Processed and Packed fish and fishery products shall be stored in a frozen state in a cold store maintained at -18^{o}C or colder.

ANNEX B6: Chilled and Frozen Fish and Fishery Products

1. Application

1.1. This shall be applied to chilled or frozen fish and fishery products.

1.2. Applies to fin and or scale fish derived from the groups of Fish termed below:

a) Teleosts - bony fish; and
b) Elasmobranches - cartilaginous fish.

2. Process Description

2.1. Chilled and frozen fin fish and fishery products to which this Standard applies shall be chilled to temperature approaching that of melting ice or frozen (-18°C or colder).

3. Characteristics

3.1. Chilled and frozen fish shall have the following characteristics:

a) be free from biological, chemical and physical contaminants; and
b) comply to sensory evaluation requirements in Table 7.0 and Table 8.0 under Section 11 of Part 1 of this Standard.

ANNEX B7: Live Fish

1. **Application**

1.1. Shall be applied to live fish intended for human consumption.

2. **Process Description**

2.1. Live Fish shall be kept in a manner that ensures a maximum survival rate.

3. **Style of Presentation**

3.1. Fish to which this part applies shall be presented alive.

4. **Characteristics**

4.1. Live Fish shall have the following characteristics:

a) an appearance and colour typical of the species; and
b) be alive and healthy with no evidence of disease, injury or parasites.

5. **Live Fish Storage and Packing**

5.1. Storage of live fish must be:

a) kept at a temperature and in a manner that does not adversely affect the food safety or viability of the fish; and
b) in proper holding storage tanks with aeration system where applicable.

5.2. Areas or parts of the facility used solely for the live fish packing shall:

a) be suitably clean;
b) be maintained in such a manner that no microbiological, physical, chemical or other objectionable substances can make the fish unfit for human consumption;
c) where appropriate, contain hand washing and toilet facilities that are readily available to processing staff as set out in section 3.17 in Part 1 of this standard;
d) have a clean dry area for the storage of packing materials;
e) where appropriate, have lighting in accordance with section 3.7.7 in Part 1 of this Standard;
f) have clean seawater or potable water; and
g) use clean packing materials in good condition.

ANNEX B8: Chilled or Frozen Lobster

1. Application

1.1. Shall be applied to chilled or frozen lobsters whether whole, tails, meat, cooked or raw.

2. Process Description

2.1. Chilled or frozen lobster to which this Standard applies shall be chilled to temperatures approaching that of melting ice or frozen (-18°C or colder).

3. Style of Presentation

3.1. Chilled or frozen lobster shall have style of presentation that is distinct, accurately labelled and meets the requirements of Table 9.0 and Table 10.0 in Part 1 of this Standard.

3.2. One specie of lobster shall be packed in each immediate container.

4. Raw Material

4.1. Lobster shall be initially prepared and processed from lobsters which are free from biological, chemical and physical contaminants that are in good condition and meet the requirements of the competent authority's Fisheries Management Plan.

5. Ingredients and Additives

5.1. The only ingredients and additives approved for use with lobster are those that:

a) meet Codex Standard for "General Standards for Food Additives"; or
b) meet importing country requirements.

6. Characteristics

6.1. Chilled or frozen lobster shall have the following characteristics:

a) where raw- flesh that is white or pink and translucent rather than opaque;
b) where cooked-flesh that is white or pink with no translucence indicating under cooking;
c) where in shell- shell that is firm and undamaged as appropriate for the style of presentation;
d) where whole, split and head on - not more than 3 legs and 1 antennae shall be missing;
e) where meat- be practically free from shell, intestine, viscera and blood;
f) all forms of presentation shall be practically free from foreign matter;
g) after thawing and cooking, the product;
    i) has an odour and flavour characteristic of the species,
    ii) has meat that is firm and not mushy or gelatinous,
h) be free from deep freezer burn and practically free from superficial freezer burn;
i) all forms of presentation be free from blackening or other abnormal colouration; and
j) where possible all lobsters shall be processed from live lobsters.

ANNEX B9: Frozen Prawns

1. Application

1.1. Shall be applied to frozen prawns.

1.2. Prawns for freezing shall be from the species of the family Penaeidae, Palaemonidae, Pandalidae, Solenaceridae or Crangonidae or importing market requirements.

1.3. The pack shall not contain a mixture of genera but may contain a mixture of species of the same genus which have similar sensory properties.

2. Process Description and Control

2.1. Standard applies as freezing within 4-6 hours and shall be, frozen prawns (-18°C or colder). The product shall be kept frozen during transportation, storage and distribution.

2.2. Water used for cleaning and or cooking/cooling shall be potable or clean sea water.

2.3. Quick Frozen Prawns shall be prepared from sound prawns which are of quality fit to be sold fresh for human consumption.

2.4. Glazing: If glazed, the water used for glazing or preparing glazing solution shall be potable or be clean sea water.

2.5. For reception of raw material, the use of a prawn washing tank is recommended, with a capacity adequate for normal production levels. The temperature of the water in the tank should be maintained below 5ºC by the addition of ice in adequate quantities.

2.6. All tanks or sinks used for the washing of prawn should be supplied with a constant flow of water, sufficient to replace the contents of the tank maximum every 1/2 hour.

2.7. Tanks used for the washing of prawn shall be emptied completely and washed and disinfected during every stoppage in the process (eg. between different batches of prawn).

2.8. Under no circumstances whatsoever shall prawns be dipped in a solution of hypochlorite stronger than the necessary to just provide a free chlorine residual greater than 1ppm (used for the general water supply / water treatment so that the water is not a source of contamination to the prawns).

2.9. All product which is stored for more than one day before processing shall be de-headed.

2.10. If the final product is to be head on prawn this shall be processed within the working shift during which it arrives, and without a period of storage.

2.11. If prawn is to be peeled and de veined but not processed immediately, it shall be stored with sufficient quantity of ice to maintain its temperature at 0ºC.

2.12. In case of peeling and de-veining, the prawn shall be peeled and de veined rapidly in order to minimise the rise in temperature.

2.13. Higher standards of hygiene and cleanliness shall be maintained at the work tables on which prawn is peeled and de-veined, due to the higher risk of contamination of the prawn flesh itself. The tables and equipment (eg. the peeling tools) should receive additional cleaning and disinfection during use.

2.14. Cooked prawn shall only be handled in an area separate to that in which the raw product is processed. There shall be no direct access for personnel between the two areas. Personnel shall be assigned specifically for the area and should be easily distinguished from the other staff. Personnel when working in this area shall not have contact with the other processing areas. Equipment shall be exclusive to this area and be differentiated of the other equipment used in other areas.

2.15. All personnel who handle cooked prawn, or who work in or enter the area in which it is processed, shall wear coats, boots, hats and aprons which are used exclusively by such personnel, and which are kept separate from the protective clothing used in the processing of raw prawn. In order to avoid confusion it is recommended that the coats and boots should be of a different colour.

2.16. All persons entering the cooked products area shall wash their hands and boots.

2.17. No equipment or other articles (including boxes, knives etc.) shall be transferred from an area in which raw prawn is handled to the cooked product area, without first receiving a thorough cleaning and disinfection.

2.18. If the final product is to be head on prawn, the processing of the raw material shall commence as soon as possible after arrival at the plant. The nature of the product demands rapid processing with rigorous temperature control.

2.19. Water chilled to below 5ºC should be used for the washing of head on prawn, at all stages of the process.

3. Style of Presentation

3.1. Any presentation of the product shall be permitted provided that it:

a) meet all the requirements of this standard;
b) is adequately described on the label to avoid and meets the labelling requirements in 11.5.3 in Part 1 of this Standard; and
c) the prawn may be packed by count per unit of weight or per package.

4. Food Additives and Ingredients

4.1. Other Ingredients: All other ingredients used shall be of food grade quality and conform to all applicable Codex Standards and or Codex Codes of Practice.

4.2. For additives, only the use of the following additives listed in the Table 21 ANNEX B9 of this Standard is permitted.

Table 21.0: Additives, Antioxidant, Colours and Preservatives Permitted to be in the Final Product

Additives	Maximum Level in the Final Product
Acidity Regulator	
300 Citric Acid	GMP
450(iii) Tetrasodium diphosphate or 450(v) Tetrapotassium diphosphate 451(i) Pentasodium triphosphate 451(ii) Pentapotassium triphosphate	10g/kg expressed as P2O5, singly in combination (includes natural phosphate
Antioxidant	
300 Ascorbic acid	GMP
Colours	
24 Pomceau 4R	30mg/kg in heat-treated products only
Preservatives	
221 Sodium sulphite 223 Sodium metabisulphite 224 Potassium metabisulphite 225 Potassium sulphite	00mg/kg in edible part of raw product, or 30mg/kg in the edible part of the cooked product, singly or in combination, expressed as SO2

4.3. The only approved packing medium is glaze of potable water to which sugar or salt may be added.

5. Characteristics

5.1. Frozen prawns shall have the following characteristics:

a) be free from lump formation when labelled as Individually Quick Frozen;
b) be clean;
c) be free from deep freezer burn;
d) where peeled- pieces of meat be practically free from pieces of shell;
e) where deveined- be practically free from attached intestinal tract;
f) after thawing- have an odour characteristic of the species;
g) free from deep dehydration;

NOTE: *Deep Dehydration: Greater than 10% of the weight of the prawn in the sample unit or greater than 10% of the surface area of the block exhibits excessive loss of moisture clearly shown as white or yellow abnormality on the surface which marks the colour of the flesh and penetrates below the surface, and cannot easily be removed by scrapping with a knife or other sharp instrument without unduly affecting the appearance of the prawn.*

h) free from discolouration; and

NOTE: *Discolouration: Distinct blackening or green or yellow discolouration, singly or in combination of more than 10% of surface area of individual shrimp which affects more than 26% of the sample unit.*

i) free from objectionable odour or flavor.

NOTE: *Odour/Flavour: Prawn affected by persistent and distinct objectionable odours indicative of decomposition or rancidity or of feed.*

ANNEX B10: Beche-de-mer

1. Application:

1.1. Shall be applied to all edible species of dried sea cucumber (Beche-de-mer).

2. Facility requirements:

2.1. Beche-de-mer facilities shall where applicable meet the facility requirements in section 3.1, 3.2, 3.3, 34, 3.5, 3.6, 3.7, 3.8, 3.10, 3.11, 3.12, 3.14 and 3.19 in Part 1 of this Standard.

3. Product Definition:

3.1. Sea cucumber which is gutted, boiled and dried to within 10% moisture content depending on the specie.

4. Style of presentation:

4.1. Beche-de-mer shall be presented as dried, dried-frozen or dried-vacuum packed and shall be labelled appropriately.

5. Essential Composition and Quality Factors:

5.1. The following quality factors shall apply to all species of sea cucumber which are processed into beche-de-mer:

a) prepared from sound sea cucumbers which are of a quality that is fit for human consumption and which meet the requirements of the competent authority and the Fisheries Management Plan;
b) cut and thoroughly eviscerated in a manner that will not result in post process bacterial contamination;
c) water to be used for boiling shall be clean sea water or potable water and food grade salt;
d) no non-food grade additives or preservatives shall be used;
e) drying areas, trays, chambers, blowers, humidifiers and the like shall not present a source of contamination to the product; and
f) product shall be dried to within 10% moisture content depending on the specie to ensure that the product does not allow for bacterial growth or to rot from the inside out when packaged.

6. Characteristics:

6.1. Dried beche-de-mer shall have the following characteristics:

a) be thoroughly eviscerated;
b) be clean;
c) be free from any physical contamination; and
d) be free from any objectionable odour.

6.2. Shall meet the requirements of NFA under the Fisheries Management Plan and meet importing country requirements where applicable.

ANNEX B11: Jellyfish Products

1. Application

1.1. Shall be applied to edible jellyfish from the specie Stomolophus Meleagris, Catostylus mosaicus, Rhopilema esculentum, Rhopilema hispidium, Aurelia aurita, C.orsini, Dactylometrapacifica, Hispidium spp, Lobonemasmithi, Lobonemoides gracilis and Stomolophus nomuria.

2. Process Description

2.1. All potentially dangerous and toxic parts of edible jellyfish including tentacles and heads removed, and thoroughly cleaned.

2.2. Washing and cleaning of edible jellyfish shall be done using clean sea water or potable water.

2.3. Food grade salt shall be used in the brining process with appropriate salinity concentration to prevent growth of pathogenic micro-organism.

2.4. Dehydration facilities and processes including curing must be done with good hygiene practises.

3. Style of presentation

3.1. Edible jellyfish shall be presented as cured or dried product.

3.2. Meets the necessary requirements of this standard.

3.3. Appropriately labelled and declare any additives, preservatives or ingredients used.

3.4. Importing country requirements are met.

ANNEX B12: Squid

1. Application

1.1. Shall be applied to quick frozen raw squid and parts of raw squid for direct consumption without further processing. It does not apply to products indicated as intended for further processing or for other industrial purpose.

1.2. Quick frozen squid and parts of squid are obtained from squid species of the following families:
   a) Loliginidae; and
   b) Ommastrephidae.

2. Process Description

2.1. Quick frozen squid shall be prepared from sound squid which are of a quality fit to be sold fresh for human consumption.

2.2. If glazed, the water used for glazing or preparing glazing solution shall be of potable quality or shall be clean sea- water.

2.3. When the food has been glazed, the declaration of the net contents of the food shall be exclusive of the glaze.

2.4. Product after any suitable preparation shall be subjected to freezing process and shall comply with conditions laid down hereafter.

2.5. Quick freezing shall be applied immediately and considered complete unless and until product temperature reached -18°C or colder at the thermal centre after thermal stabilization.

2.6. Product temperature shall be maintained at -18°C or colder so as to maintain the quality and safety during transpiration, storage and distribution.

2.7. Industrial repacking of immediate quick frozen material under controlled conditions which maintain the quality of the product, followed by reapplication of the quick freezing process as defined above is permitted.

2.8. Quick frozen squid and parts of squid shall be processed and packed so as to minimise dehydration and oxidation.

2.9. Meet Importing country's requirement.

3. Style of Presentation

3.1. Any presentation of the product shall be permitted provided that it:
   a) meets all the requirements of this standard; and
   b) is adequately described on the label to avoid confusing or misleading the consumer.

4. Food Additives

4.1. No food additives are permitted in these products.

5. Characteristics

5.1. Good hygiene practises shall be applied in all aspects of product handling as required in Part 1 of this Standard.

5.2. The product should comply with any microbiological criteria established with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

5.3. The product shall not contain any parasites.(USFDA Hazards & Control Guide).

5.4. The product shall be free from any foreign material that poses a threat to human health.

5.5. The product shall not contain any other substance in amounts which may present a hazard to health in accordance with standards established by the Codex Alimentarius Commission.

6. Labeling

6.1. Labeling of product shall where appropriate comply with requirements in section 11.5.3 in Part 1 of this Standard.

ANNEX B13: Fish Oil

1. Criteria for Crude Fish Oil

1.1. These requirements shall be applied to fish oils intended for human consumption that are used in food and food supplements where those are regulated as foods. In this case is tuna oil derived from the genus *Thunnus* and species *Katsuwonus pelamis* (Scombridae). Other fish species not covered in this standard shall meet the requirements of Codex Standards 329-2017.

1.2. Crude fish oil intended for human consumption after they have undergone further processing, e.g refining and purification and comply with requirements in Annex A12(2) of this Standard.

1.3. Crude fish oil can come in the form of concentrated fish oil and or concentrated fish oil ethyl esters:

a) concentrated fish oil is subjected to the processes that may involve, but are not limited to hydrolysis, fractionation, winterization and/or re-esterification to increase the concentration of specific fatty acids;
b) concentrated fish oil contains 35 to 50 w/w % fatty acids as scum of C20:5 (n-3) eicosapentaenoic acid (EPA) and C22:6 (n-3) docosahexaenoic acid (DHA). In the case of fish oil extracted from non-whole tune the fish oil concentrate may be less than 35w/w %;
c) highly concentrated fish oil contains more than 50 w/w % fatty acids as sum of EPA and DHA;
d) concentrated fish oils ethyl esters are primarily composed of fatty acids ethyl esters; and
e) concentrated fish oils ethyl esters contain fatty acids as esters of ethanol of which 40 to 60 ww % are as sum of EPA and DHA.

1.4. Fatty acid composition for tuna oils shall fall within the appropriate range specified in Table 22 in ANNEX B13 of this Standard.

Table 22: Fatty acid (FA) composition of tuna oils determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids)

Fatty Acids	**Tuna**
C14:0 myristic acid	ND-5.0
C15:0 pentadecanoic acid	ND-2.0
C16:0 palmitic acid	14.0-24.0
C16:1 (n-7) palmitoleic acid	ND-12.5
C17:0 heptadecanoic acid	ND-3.0
C18:0 stearic acid	ND-7.5
C18:1 (n-7) vaccenic acid	ND– 7.0
C18:1 (n-9) oleic acid	10.0-25.0
C18:2 (n-6) linoleic acid	ND-3.0
C18:3 (n-3) linolenic acid	ND-2.0
C18:3 (n-6) γ-linolenic acid	ND-4.0
C18:4 (n-3) stearidonic acid	ND-2.0
C20:0 arachidic acid	ND-2.5
C20:1 (n-9) eicosenoic acid	ND-2.5
C20:1 (n-11) eicosenoic acid	ND-3.0
C20:4 (n-6) arachidonic acid	ND-3.0
C20:4 (n-3) eicosatetraenoic acid	ND-1.0
C20:5 (n-3) eicosapentaenoic acid	2.5-9.0
C21:5 (n-3) heneicosapentaenoic acid	ND-1.0

Fatty Acids	Tuna
C22:1 (n-9) erucic acid	ND-2.0
C22:1 (n-11) cetoleic acid	ND-1.0
C22:5 (n-3) docosapentaenoic acid	ND-3.0
C22:6 (n-3) docosahexaenoic acid	21.0-42.5

ND = not-detect, defined as ≤0.05% NA = not applicable or avaiable

1.5 Comply with importing country's requirements.

2. Criteria for Refined Fish Oil

2.1. These requirements apply to fish oils intended for human consumption that are used in food and food supplements where those are regulated as foods. In this case is tuna oil derived from the genus *Thunnus* and species *Katsuwonus pelamis* (Scombridae). Other fish species not covered in this standard shall meet the requirements of Codex Standards 329-2017.

2.2. General hygiene

2.2.1. The preparation, handling and storage shall be in accordance with requirements of Part 1 of this Standard.

2.3. Quality Parameters (Ref: Codex Standard for Fish Oils 329-2017)

2.3.1. These parameters apply to fish oils, fish liver oils, concentrated fish oils, and concentrated fish oils ethyl esters with the exception of fish oils with high phospholipid concentration of 30% or more.

Table 23.0: Quality Parameters (Oxidation Limits)

Parameter	Limit
Acid value	≤ 3 mg KOH/g
Peroxide value	≤ 5 milliequivalent of active oxygen/kg oil
Anisidine value (	≤ 20
Total Oxidation (ToTox)[2]	≤26

Source: Section 3.3.1 of Codex Standard 329-2017

2.4. Food Additives

2.4.1. Antioxidants, sequestrants, antifoaming agents, and emulsifiers used in accordance with Tables 24 of ANNEX B13 of this Standard for Food Additives (CODEX STAN 192-1995), in food category 02.1.3 Lard, tallow, fish oil, and other animal fats are acceptable for use in foods conforming to this standard.

2.4.2. The following additives may be used in addition,

Table 24.0: Permitted Antioxidant and Emulsifier

INS Antioxidant	Additive Name	Maximum Level
300	Ascorbic acid, L-	GMP
304, 305	Ascorbyl esters	2500 mg/kg, as ascorbyl stearate
307a, b, c	Tocopherols	6000mg/kg, singly or in combination
Emulsifier		
322 (i)	Lecithin	GMP
471	Mono- and di-glycerides of fatty acids	GMP

2.4.3. The flavourings used in products covered by this standard should comply with the *Guidelines for the Use of Flavourings* (CAC/GL 66-2008).

2.5. Contaminants

2.5.1. The level of contaminants shall comply with the following Maximum Levels:

Table 25.0: Residue or Contaminant Levels in Fish Oils

Residue or Contaminant	Maximum Limit (mg/kg)
Lead	<0.1 mg/kg
Arsenic	<0.1 mg/kg

Mercury	<0.1mg/kg
Cadmium	<0.1mg/kg

Source: International Fish Oil Standards (IFOS) programme, World Health Organization (WHO) fish oil monograph, and California's Proposition 65 (PROP 6)

2.6. Quality Guidelines for Refined Oils

2.6.1. Must meet the following contaminants level.

Table 26.0: Quality Guidelines for Refined Oils

Parameter	**Quality guidelines**
Colour	<3.0 Red, 30 Yellow
Odour and taste	Bland
Matter volatile at 105 °C	<0.2 %
Insoluble impurities	<0.05 %
Soap content	<0.005 %
Iron	<0.12 mg/kg
Free fatty acids	<0.10 % (as oleic acid)
Copper	<0.05 mg/kg
Peroxide value	<0.1meq O_2/kg
Nickel	<0.20 mg/kg

Source: Table 3, Section 3.3.5 of EFSA Scientific Opinion on Fish Oil for Human Consumption.

2.6.2. Testing of samples for tests given above shall be performed at least annually.

2.7. Labelling

2.7.1. All labels shall comply with the requirements of Codex Standards for Labelling of Prepacked Foods (CODEX STAN 1-1985) and the Guidelines on Nutrition Labelling (CAC/GL 2-1985).

2.7.2. The name of the fish oil must clearly be identified with the common name of the fish as required in section 2 of Codex Standard for Fish Oils 329-2017.

2.7.3. Labelling on non-retail containers shall be given either on the container or in accompanying documents, except that the name of the food, lot identified, and the name and address of the manufacturer or packer shall appear on the container.

NOTE 1: *However, lot identification and the name and address of the manufacturer or packer maybe replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.*

NOTE 2: *For crude fish oils and crude liver oils the label shall indicate that these oils are intended for human consumption only after they have undergone further processing.*

2.7.4. Other labelling requirements shall comply with the regulatory requirements of the country undertaking imports or retail sale.

2.8. Method of Analysis and Sampling

2.8.1. Shall comply with the Recommended Methods of Analysis and Sampling in Codex Standards 234-1999.

ANNEX B14: Fish Meal

1. Criteria for Fish Meal

1.1. Fishmeal shall be prepared so as to be safe, wholesome and fit for placing on the market and shall meet the following requirements:

a) labelled with the text "not for human consumption" or similar; and
b) samples of the final products taken during or on withdrawal from storage at the processing plant must comply with the following specifications in Table 27 in ANNEX B14 of this Standard.

Table 27.0: Microbiological Agents Specifications in Fishmeal

Microbiological Agents	Specifications (Allowable Limits)
Salmonella: absence in 25 g:	n = 5, c = 0, m = 0, M = 0
Enterobacteriaceae:	n = 5, c = 2, m = 10, M = 300 in 1 g

where:

n = number of samples to be tested
m = threshold value for the number of bacteria
M = the maximum value of bacteria that cannot be exceeded
c = the number of sample results that can fall between m and M, the sample still being considered acceptable if the bacterial count of the other samples is m or less.

c) Contaminant or residue levels for Fishmeal are given in the Table 28 in ANNEX B14 of this Standard.

Table 28.0: Residue or Contaminant Levels in Fishmeal

Residue or Contaminant	Maximum Limit (mg/kg) (unless otherwise stated)
Arsenic	25.0
Cadmium	2.0
Lead	10.0
Mercury	0.5
Nitrite	30.0
Dioxins	1.25 ppt
Sum of dioxins and dioxin-like PCBs	10 ppt

1.2. Testing of fishmeal samples for tests indicated in Table 28 above shall be performed at least annually.

ANNEX C: HACCP DEVELOPMENT TOOLS

ANNEX C1: Risk Evaluation Methodology (REM) and Risk Assessing Tools (RAT)

Table 30.0: Severity Assessment Tool (SAT) and Criteria

SEVERITY	EXTENT OF CONSEQUENCES - HEALTH OUTCOME / DEGREE OF VIRULENCE
HIGH Serious or Very Serious	**Serious or very serious health outcomes: may cause permanent disability or death.** Significant potential to put at risk vulnerable groups (elderly, infants, pregnant, immune-suppressed) or large numbers of consumers with severe or very serious hazards. Concentration* of the hazard is near the Infectious** Dose (ID): - ID in raw material and production environment is BIG - Minimal Infectious Dose (MID) for the hazard (bacteria / toxin) is SMALL - Growth Conditions*** (GC) / Development Conditions (DC) or Contamination Conditions (CC) for MID are VERY FAVORABLE
MEDIUM	**Temporary disability**: **virulence is rather low.** Health outcome may be reverted by medical assistance (may include hospitalization). Health outcomes involves Medium / Long term health consequences. The hazard may exist, but the concentration* is low, without significant health consequences: - ID** in raw material and production environment = SMALL - MID for the hazard (bacteria / toxin) = SMALL/INTERMEDIARY - GC*** / DC / CC for MID = POSSIBLE Dissemination maybe potentially extensive, however there is reduced potential to put vulnerable groups at risk, due to limited distribution or where the product is to be cooked before consumption. The final intended consumption may eliminate or reduce the hazard to an acceptable level.
LOW Subclinical	**Only a minimal potential to harm consumers: with no clinical implications!** An ID** is difficult to be reached (basically due to lack of GC): - ID in raw material and production environment = SMALL; - MID for the hazard (bacteria / toxin) = INTERMEDIARY/BIG; - GC*** / DC / CC are NOT Favorable

* Understanding: a level of quantity ** Consider also injurious
***Consider also inputting – introducing conditions (eg. in case of physical hazards) and contamination.

Table 31.0: Likelihood / Probability Assessment Tool (PAT) and Criteria

LIKELIHOOD	PROBABILITY (EXTENT) OF OCCURRENCE	Occurrence Frequency & Degree of Difficulty of occurrence conditions
HIGH	Hazard occurs often or may easily occur if given the appropriate conditions. PRODUCT:HAZARD Pair Conditions for occurring may easily happen.	Frequent Easily
MEDIUM	Hazard occurs with relative frequency. Existing data (literature) confirms that the hazard in the specific product has in the past already developed to a significant (unacceptable) level, or is specific for the establishment. PRODUCT:HAZARD Pair Conditions for occurrence are possible to happen.	Relatively Frequent Possible
LOW	Hazard has never occurred. Not PRODUCT:HAZARD Pair No historic data (literature) reveals hazard has developed to an unacceptable level in the specific product. Conditions for occurrence are very difficult to happen or are in fact not applicable.	Rare or Not applicable Very difficult

Table 32.0: Risk Assessment Matrix Tool (RAM) based on outcomes of SAT & PAT

LIKELIHOOD	**SEVERITY**		
	Low	**Medium**	**High**
High	**LOW / Medium risk**	**Medium / HIGH Risk** **<u>High priority</u>** **Significant Hazard**	**HIGH Risk** **<u>High priority</u>** hazards to receive the main focus of the control system **Significant Hazard**
Medium	**LOW priority** **<u>Hazard Not Significant</u>**	**MEDIUM / Low Risk**	
Low		**LOW priority**	**LOW / Medium risk**

FEEDBACK CONCLUSIONS: INDICATIVE TYPE OF CONTROL EXPECTED

Likelihood	**Severity**		
	Low	**Medium**	**High**
High	Case by case analysis	**Most probably** **CCP** **(HACCP)**	**Most probably** **CCP** **(HACCP)**
Medium	most probably controlled by **GMP / SSOP** (HACCP Pre-Requirements)	Case by case analysis Maybe under Sanitation / Manufacturing Control Procedure (*)	
Low		most probably controlled by **GMP / SSOP**	Case by case analysis

(*) Also identified as OPRPs

<u>The previous tools (tables) still might have some difficulties in their application. In this case it is suggested the use of the alternative</u> **Severity & Likelihood Decision Tree Matrix Assessing Tools** (based on the same contents of the tables).

Table 33.0: Severity Assessing Tool (SAT) Using Sat Decision Tree Matrix

1.	**What is the harmful level of the hazard? (eg. ID)**			Instructions for final decision - Give overall decision from the row having 2 or 3 chosen answers. - In case having one chosen answer in each row follow the row containing answer chosen for C. - always give priority to an answer which overrides a previous answer.
	A Concentration* of the hazard in raw material and production environment is: *Chose only one*	**B** Minimal Infectious** Dose (MID) for the hazard (bacteria / toxin) is: *Chose only one*	**C** Growth*** Conditions / Development Conditions or Contamination Conditions (GC / DC / CC) for MID are: *Chose only one*	**Decision:**
1.1	BIG. (therefore near ID)	SMALL.	VERY FAVORABLE!	The concentration of the hazard is near the Infectious Dose (ID).
				Proceed to #2
1.2	SMALL /intermediate	Small/INTERMEDIATE	POSSIBLE	The hazard may exist, but the concentration is low
				Proceed to #2
1.3	VERY SMALL	Intermediate / BIG	NOT FAVORABLE OR Lack of GC	An ID is difficult OR impossible to be reached (basically due to lack of GC***)
				Stop **Severity is LOW**

* Understanding: a level of quantity ** Consider also injurious

***Consider also inputting – introducing conditions (eg. in case of physical hazards) and contamination.

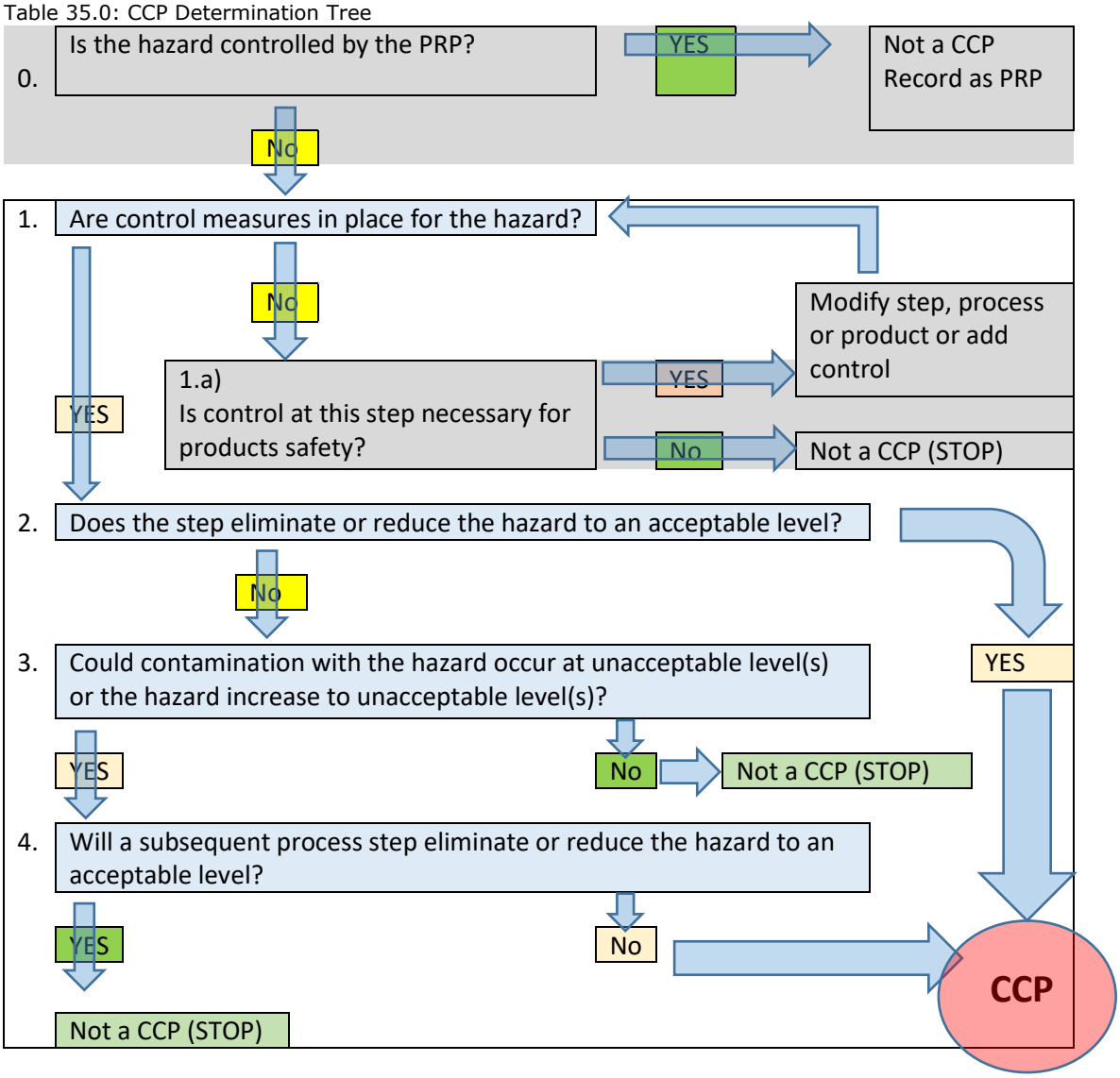
2.	**What are the extent of the health consequences / outcome to the consumer?**				
	2.1	2.2	2.3	2.4	2.5
	Serious or very serious health outcomes: may cause permanent disability or death	Significant potential to put at risk vulnerable groups (elderly, infants, pregnant , immune-suppressed) OR large numbers of consumers with severe or very serious hazards;	**Temporary disability** – virulence or injury is rather low OR Reverted by medical assistance (may include hospitalization) OR involving Medium / Long term health consequences	Dissemination maybe potentially extensive, however there is reduced potential to put vulnerable groups at risk, due to limited distribution or where the product is to be cooked before consumption. The final intended consumption may eliminate or reduce the hazard to an acceptable level.	**Only a minimal potential to harm consumers. With no clinical implications.** Eventually affecting the consumer with light foodborne poisoning through home-sickness quickly reversible.
SEVERITY IS?:	**HIGH**	**HIGH**	**MEDIUM**	**MEDIUM**	**LOW**

Table 34.0: Probability (Likelihood) Assessing Tool (PAT) Using Likelihood Decision Tree Matrix

3.	**What is the Probability / Extent of occurrence of the hazard?** SELECT ONLY 1 ANSWER OF EACH GROUP A, B, C						2 or 3 answers in same row will give final Decision:
	A. **Frequency** of hazard occurrence		B. Occurrence of appropriate conditions for the hazard		C. Historical data (literature)		
3.1	Often occurs OR may easily occur (if given the appropriate conditions)		may easily happen		Confirms the hazard frequently developing in the product or at the respective establishment		**HIGH**
3.2	Occurs with relative frequency		are possible to happen		confirms that the hazard in the product has in the past already developed to a significant (unacceptable) level		**MEDIUM**
3.3	Never occurs OR not frequent OR not easy to have the appropriate conditions		are very difficult to happen or are in fact not applicable		No historic data (literature) revealing the hazard has developed to an unacceptable level in the product		**LOW**

ANNEX C2: CCP Determination Tree

Table 35.0: CCP Determination Tree



ANNEX D: IMPORT PERMIT FORM 10

Food Sanitation Regulation2007

PAPUA NEW GUINEA

***Food Sanitation Act* 1991.**

Reg. Sec.29(6). **Form 10.**

IMPORT PERMIT

(Insert full name of applicants) of (insert address of applicants) is permitted to import into Papua New Guinea the articles detailed below for the purpose of their use and sale under the ***Food Sanitation Act 1991***, ***Food Sanitation Regulation 2007*** and Standards prescribed under the Act.

The article(s) is/are of the type described below:

Article Type	Quantity	Lot ID	Country of Origin	Description

Food Inspector Issuing Import Permit: ……..
(Signature)

Date:	Authority Certificate Number ----------

ANNEX E: TRADING LICENCE FORM 13

Food Sanitation Regulation2007

PAPUA NEW GUINEA

***Food Sanitation Act* 1991.**

Reg. Sec.36 **Form 13.**

APPLICATION FOR LICENCE/LICENCE RENEWAL TO CONDUCT OR CARRY ON A PRESCRIBED BUSINESS.

CONTACT DETIALS	
Name of proprietor	
Business Address of proprietor	
Trading name of food business	
Licence Number (if any)	
Contact Details PLEASE NOTE: *If this is a single food business then complete details in this section. If there are multiple premises (within the jurisdiction of the relevant enforcement agency) then complete details under the section '**Location of all food premises**' below.* ***Attach a floor plan of premises, buildings, structures, access ways etc.***	☐ Business hours phone number: _____ ☐ After hours phone number _____ ☐ Facsimile Number: _____ ☐ Email Address: _____

OWNERS OF PREMISES	
Owner's Name:	
Owners Address:	
Contact Details:	☐ Business hours phone number: _____ ☐ After hours phone number _____ ☐ Facsimile Number: _____ ☐ Email Address:

ANNEX F: MODEL HEALTH CERTIFICATE FOR FISH AND FISHERY PRODUCTS

MODEL SANITARY CERTIFICATE
COVERING FISH AND FISHERY PRODUCTS

(*LETTERHEAD or LOGO*)	Identification number: _____

Country of Dispatch:
Competent Authority:
Certifying Body:

I. Details Identifying the Fishery Products

Description of product	Species (scientific name)	State or type of processing	Type of packaging	Lot Identifier/ date code	Number of packages	Net weight
				Sum		

Temperature required during storage and transport: _____°C

II. Provenance of the Fishery Products

Address(es) and/or the Registration number(s) of production establishment(s) authorized for exports by competent authority:
_____

Name and address of consignor:
_____

III. Destination of the Fishery Products

The fishery products are to be dispatched
from: _____
(Place of dispatch)
to:_____
(Country and place of destination)
by the following means of
transport: _____

Name of consignee and address at place of
destination: _____

IV. Attestation

The undersigned certifying officer hereby certifies that:
1) The products described above originate from (an) approved establishment(s) that has been approved by, or otherwise determined to be in good regulatory standing with the competent authority in the exporting country and
2) have been handled, prepared or processed, identified, stored and transported under a competent HACCP and sanitary programme consistently implemented and in accordance with the requirements laid down in Codex Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003)

Done at _____ on_____
(Place) (Date)

(*SEAL*) _____ _____
(Signature of certifying officer) (Name and official position)

Tel:
Fax:
E-mail: (optional)

ANNEX G: INTERNATIONAL HARMONIZED COMMODITY DESCRIPTION AND CODING SYSTEM (HS CODE)

Listing of Fish and Fishery Products to be listed under the Papua New Guinea Standard for Export Purposes based on the Import and Exports Customs Tariff Schedule 1 (2012 Version).

Customs Tariff - Schedule I

Section I - Live Animals; Animal Products

Chapter 3

Fish and Crustaceans, Molluscs and Other Aquatic Invertebrates

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
03.01	**LIVE FISH**		
0301.1	**- Ornamental fish**		
0301.11.00	-- Freshwater		
0301.19.00	-- Other		
0301.9	**- Other live fish**		
0301.91.00	-- Trout (Salmo trutta, Oncorhynchus mykiss, Oncorhynchus clarki, Oncorhynchus aguabonita, Oncorhynchus gilae, Oncorhynchus apache and Oncorhynchus chrysogaster)		
0301.92.00	-- Eels		
0301.93.00	-- Carp (Cyprinus carpio, Carassius carassius,Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharynogodon piceus)		
0301.94.00	-- Atlantic and Pacific bluefin tunas (Thunnus thynnus, Thunnus orientalis)		
0301.95.00	-- Southern bluefin tunas (Thunnus maccoyii)		
0301.99.00	-- Other		
03.02	**FISH, FRESH OR CHILLED, EXCLUDING FISH FILLETS AND OTHER FISH MEAT OF HEADING 03.04.**		
0302.1	**- Salmonidae, excluding livers and roes**		
0302.11.00	-- Trout		
0302.13.00	-- Pacific salmon, (Oncorhynchus nerka, Oncorhynchus gorbuscha, Oncorhynchus keta, Oncorhynchus tschawytscha,Oncorhynchus kisutch, Oncorhynchusmasou and Oncorhynchus rhodurus)		
0302.14.00	-- Atlantic salmon (Salmo salar) and Danube salmon (Hucho hucho)		
0302.19.00	Other		
0302.2	**- Flat fish, excluding livers and roes**		
0302.21.00	-- Halibut		
0302.22.00	-- Plaice		
0302.23.00	-- Sole		
0302.24.00	-- Turbots (Psetta maxima, Scophthalmidae)		
0302.29.00	Other		
0302.3	**- Tunas, skipjack or stripe-bellied bonito, excluding livers and roes**		
0302.31.00	-- Albacore or longfinned tunas		
0302.32.00	-- Yellowfin tunas		
0302.33.00	-- Skipjack or stripe-bellied bonito		
0302.34.00	-- Bigeye tunas (Thunnus obesus)		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0302.35.00	-- Atlantic and Pacific bluefin tunas (Thunnus thyynnus, Thunnus orientalis)		
0302.36.00	-- Southern bluefin tunas (Thusnnus maccoyii)		
0302.39.00	-- Other		
0302.4	**HerringClupea harengus, Clupea pallasii), anchovies (Engraulis spp.), sardines (Sardina pilchardus, Sardinops spp.), brisling or sprats (Sprattus sprattus), mackerel (Scomber australasicus, Scomber japonicus), jack and horse makerel (Trachurus spp.), cobia (Rachycentron canadum) & swordfish (Xiphias gladius), excluding livers & roes**		
0302.41.00	-- Herrings (Clupea harengus, Clupea pallasii)		
0302.42.00	-- Anchovies (Engraulis spp.)		
0302.43.00	-- Sardines (Sardina pilchardus, Sardinops spp.), sardinella (Sardinella spp.) brisling or sprats (Sprattus sprattus)		
0302.44.00	-- Mackerel (Scromber scombrus, Scomber australasicus Scomber japonicus)		
0302.45.00	-- Jack and horse makerel (Trachurus spp.)		
0302.46.00	-- Cobia (Rachycentron canadum)		
0302.47.00	-- Swordfish (Xiphias gladius)		
0302.5	**- Fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae, excluding livers and roes**		
0302.51.00	-- Cod (Gadus morhua, Gadus ogac, Gadus macrocephalus)		
0302.52.00	-- Haddock (Melanogrammus aeglefinus)		
0302.53.00	-- Coalfish (Pollachius virens)		
0302.54.00	-- Hake (Merlucius spp, Urophycis spp)		
0302.55.00	-- Alaska Pollack (Theraga chalcogramma)		
0302.56.00	-- Blue whitings (Micromesistius poutassou, Micromesistius australis)		
0302.59.00	-- Other		
0302.7	**- Tilapias (Oreochromis spp.) catfish (Pangasius spp., Silurus spp, Clarias spp, Ictalurus spp,), carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus,Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels(Anguilla spp.), Nile perch (Lates niloticus) and snakeheads (Channa spp.), excluding livers and roes**		
0302.71.00	-- Talapias (Oreochromis spp.)		
0302.72.00	-- Catfish (Pangasius spp.,Silurus spp, Clarias spp, Ictalurus spp.)		
0302.73.00	-- Carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus)		
0302.74.00	-- Eels (Anguilla spp.)		
0302.79.00	-- Other		
0302.8	**- Other fish, excluding livers and roes:**		
0302.81.00	-- Dogfish and other sharks		
0302.82. 00	-- Rays and Skates (Rajidae)		
0302.83.00	-- Tooth fish (Dissostichus spp.)		
0302.84.00	-- Seabass (Dicentrarchus spp.)		
0302.85.00	-- Seabream (Sparidae)		
0302.89.10	--- Barramundi		
0302.89.30	--- Barracouta		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0302.89.40	--- Bait for fishing of heading (03.02)		
0302.89.90	--- Other		
0302.90.00	- Livers and roes		
03.03	**FISH, FROZEN, EXCLUDING FISH FILLETS AND OTHER FISH MEAT OF HEADING 03.04.**		
0303.1	- Salmonidae, excluding livers and roes:		
0303.11.00	-- Sockeye salmon (red salmon) (Oncorhynchus nerka)		
0303.12.00	-- Other Pacific Salmon (Oncorhynchus gorbuschus, Oncorhynchus keta, Oncorhynchus tschawytscha, Oncorhynchus kisutch, Oncorhynchus masou, Oncorhynchus rhodurus)		
0303.13.00	-- Atlantic salmon (Salmo salar) and Danube salmon (Hucho hucho)		
0303.14.00	-- Trout (Salmon trutta, Oncorhynchus mykiss, Oncorhynchus clarki, Oncorhynchus aguabonita,Oncorhynchus gilae, Oncorhynchus apache, Oncorhynchus chrysogaster)		
0303.19.00	-- Other		
0303.2	- **Tilapias (Oreochromis spp.) catfish (Pangasius spp., Silurus spp, Clarias spp, Ictalurus spp,), carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.), Nile perch (Lates niloticus) and snakeheads (Channa spp.), excluding livers and roes:**		
0303.23.00	-- Tilapias (Oreochromis spp.)		
0303.24.00	-- Catfish (Pangasius spp.,Silurus spp, Clarias spp, Ictalurus spp.)		
0303.25.00	-- Carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus)		
0303.26.00	-- Eels (Anguilla spp.)		
0303.29.00	-- Other		
0303.3	**- Flat fish, excluding livers and roes:**		
303.31.00	-- Halibut		
0303.32.00	-- Plaice		
0303.33.00	-- Sole		
0303.34.00	-- Turbots (Psetta maxima, Scophthalmidae)		
0303.39.00	-- Other		
0303.4	**- Tunas, skipjack or stripe-bellied bonito, excluding livers and roes:**		
0303.41.00	-- Albacore or longfinned tunas		
0303.41.10	-- Albacore or longfinned tunas for processing by licensed processor		
0303.42.00	-- Yellowfin tuna		
0303.42.10	-- Yellowfin tunas for processing by licensed processor		
0303.43.00	-- Skipjack or stripe-bellied bonito		
0303.43.10	-- Skipjack or stripe-bellied bonito for processing by licensed processor		
0303.44.00	-- Bigeye tunas		
0303.44.10	-- Bigeye tunas for processing by licensed processor		
0303.45.00	-- Atlantic and Pacific bluefin tunas (Thunnus thynnus,Thunnus orientalis)		
0303.46.00	-- Southern bluefin tunas		
0303.49.00	-- Other , subject to 0303.49.10		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0303.49.10	--- Aji scad for processing by a licensed processor		
0303.5	**- Herrings (Clupea harengus, Clupea pallasii), sardines (Sardina pilchardus, Sardinops spp.) brisling or sprats (Sprattus sprattus), mackerel (Scomber australasicus, Scomber japonicus), jack and horse makerel (Trachurus spp.), cobia (Rachycentron canadum) and swordfish (Xiphias gladius), excluding livers and roes:**		
0303.51.00	-- Herrings (Clupea harengus, Clupea pallasii)		
0303.53.00	-- Sardines (Sardina pilchardus, Sardinops spp.), sardinella (Sardinella spp.) brisling or sprats (Sprattus sprattus)		
0303.54.00	-- Mackerel (Scromber scombrus, Scomber australasicus Scomber japonicus)		
0303.55.00	-- Jack and horse makerel (Trachurus spp.)		
0303.56.00	-- Cobia (Rachycentron canadum)		
0303.57.00	-- Swordfish (Xiphias gladius)		
0303.6	**- Fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae, excluding livers and roes:**		
0303.63.00	-- Cod (Gadus morhua, Gadus ogac, Gadus macrocephalus)		
0303.64.00	-- Haddock (Melanogrammus aeglefinus)		
0303.65.00	-- Coalfish (Pollachius virens)		
0303.66.00	-- Hake (Merlucius spp, Urophycis spp)		
0303.67.00	-- Alaska Pollack (Theraga chalcogramma)		
0303.68.00	-- Blue whitings (Micromesistius poutassou, Micromesistius australis)		
0303.69.00	-- Other		
0303.8	**- Other fish, excluding livers and roes:**		
0303.81.00	-- Dogfish and other sharks		
0303.82.00	-- Rays and Skates (Rajidae)		
0303.83.00	-- Tooth fish (Dissostichus spp.)		
0303.84.00	-- Seabass (Dicentrarchus spp.)		
0303.89.00	-- Other		
0303.89.10	--- Barramundi		
0303.89.20	--- Barracuda		
0303.89.30	--- Barracouta		
0303.89.40	--- Bait for fishing of heading (03.02)		
0303.89.90	--- Other		
0303.90.00	- Livers and roes		
03.04	**FISH FILLETS AND OTHER FISH MEAT (WHETHER OR NOT MINCED), FRESH, CHILLED OR FROZEN.**		
0304.1	**- Fresh or chilled fillets of tilapias (Oreochromis spp.) catfish (Pangasius spp., Silurus spp., Clarias spp., Ictalurus spp.), carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.) Nile perch (Lates niloticus), and snakeheads (Channa spp.):**		
0304.31.00	-- Tilapias (Oreochromis spp.)		
0304.32.00	-- Catfish (Pangasius spp.,Silurus spp. Clarias spp, Ictalurus spp.)		
0304.33.00	-- Nile perch (Lates niloticus)		
0304.39.00	-- Other		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0304.4	**- Fresh or chilled fillets of other fish:**		
0304.41.00	-- Pacific salmon (Oncorhynchus nerka, Oncorhynchus gorbuscha, Oncorhynchus Keta, Oncorhynchus tschawytscha, Oncorhynchus kisutch, Oncorhynchus masou and Oncorhynchus rhodurus), Atlantic salmon (Salmo salar) and Danube salmon (Hucho hucho)		
0304.42.00	-- Trout (Salmon trutta, Oncorhynchus mykiss, Oncorhynchus clarki, Oncorhynchus aguabonita, Oncorhynchus gilae, Oncorhynchus apache, Oncorhynchus chrysogaster)		
0304.43.00	-- Flat fish (Pleuronectidae, Bothidae, Cynoglossidae, Soleidae, Scophthalmidae, and Citharidae)		
0304.44.00	-- Fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae		
0304.45.00	-- Swordfish (Xiphias gladius)		
0304.46.00	-- Tooth fish (Dissostichus spp.)		
0304.49.00	-- Other		
0304.5	**- Other, fresh or chilled:**		
0304.51	-- Tilapias (Oreochromis spp.), catfish (Pangasius spp.,Silurus spp., Clarias spp., Ictalurus spp.), carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.), Nile perch (Lates niloticus) and snakeheads (Channa spp.)		
0304.52.00	-- Salmonidae		
0304.53.00	-- Fish of the families Bregmacerotidae Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae		
0304.54.00	-- Swordfish (Xiphias gladius)		
0304.55.00	-- Tooth fish (Dissostichus spp.)		
0304.59.00	-- Other		
0304.6	**- Frozen fillets of tilapias (Oreochromis spp.), catfish (Pangasius spp., Silurus spp., Clarias spp., Ictalurus spp.), carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.), Nile perch (Lates niloticus), and snakeheads (Channa spp.):**		
0304.61.00	-- Tilapias (Oreochromis spp.)		
0304.62.00	-- Catfish (Pangasius spp., Silurus spp., Clarias spp., Ictalurus spp.)		
0304.63.00	-- Nile perch (Lates niloticus)		
0304.69.00	-- Other		
0304.7	**- Frozen fillets of fish of the families Bregmacerotidae, Euclichthyidae,Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae:**		
0304.71.00	-- Cod (Gadus morhua, Gadus ogac, Gadu macrocephalus)		
0304.72.00	-- Haddock (Melanogrammus aeglefinus)		
0304.73.00	-- Coalfish (Pollachius virens)		
0304.74.00	-- Hake (Merlucius spp, Urophycis spp)		
0304.75.00	-- Alaska Pollack (Theraga chalcogramma)		
0304.79.00	-- Other		
0304.8	**- Frozen fillets of other fish:**		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0304.81.00	-- Pacific salmon, (Oncorhynchus nerka, Oncorhynchus gorbuscha, Oncorhynchus keta, Oncorhynchus tschawytscha, Oncorhynchus kisutch, Oncorhynchus masou and Oncorhynchus rhodurus), Atlantic salmon (Salmo salar) and Danube salmon (Hucho hucho)		
0304.82.00	-- Pacific salmon, (Oncorhynchus nerka, Oncorhynchus clarki, Oncorhynchus aguabonita, Oncorhynchus gilae, Oncorhynchus apache and Oncorhynchus chrysogaster)		
0304.83.00	-- Flat fish (Pleuronectidae, Bothidae, Cynoglossidae, Soleidae, Scophthalmidae, and Citharidae)		
0304.84.00	-- Swordfish (Xiphias gladius)		
0304.85.00	-- Tooth fish (Dissostichus spp.)		
0304.86.00	-- Herrings (Clupea harengus, Clupea pallasii)		
0304.87.00	-- Tunas (of the genus Thunnus), skipjack or stripe-bellied bonito (Euthynnus (Katsuwonus) pelamis)		
0304.89.00	-- Other		
0304.9	**- Other, frozen:**		
0304.91.00	-- Swordfish		
0304.92.00	-- Toothfish		
0304.93.00	-- Tilapias (Oreochromis spp.), catfish (Pangasius spp., Silurus spp., Clarias spp., Ictalurus spp.) carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.) Nile perch (Lates niloticus), and snakeheads (Channa spp.)		
0304.94.00	-- Alaska Pollack (Theraga chalcogramma)		
0304.95.00	-- Fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae, other than Alaska Pollack (Theraga chalcogramma)		
0304.99.10	--- Barramundi		
0304.99.20	--- Barracuda		
0304.99.30	--- Barracouta		
0304.99.90	--- Other		
03.05	**FISH, DRIED, SALTED OR IN BRINE; SMOKED FISH, WHETHER OR NOT COOKED BEFORE OR DURING THE SMOKING PROCESS; FLOURS, MEALS AND PELLETS OF FISH, FIT FOR HUMAN CONSUMPTION.**		
0305.10.00	-- Flours, meals and pellets of fish, fit for human consumption		
0305.20.00	-- Livers and roes of fish, dried, smoked, salted or in brine		
0305.3	**- Fish fillets, dried, salted or in brine, but not smoked:**		
0305.31.00	-- Tilapias (Oreochromis spp.), catfish (Pangasius spp., Silirus spp Clarius spp., Ictalurus spp.), carp (Cyprinus carpio, Carassius Carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.), Nile perch (Lates niloticus) and snakeheads (Channa spp.)		
0305.32.00	-- Fish of the families Bregmacerotidae, Euclichthyidae, Gadidae, Macrouridae, Melanonidae, Merlucciidae, Moridae and Muraenolepididae,		
0305.39.00	-- Other		
0305.4	**- Smoked fish, including fillets, other than edible fish offal:**		
0305.41.00	-- Pacific salmon, (Oncorhynchus nerka, Oncorhynchus gorbuscha, Oncorhynchus keta, Oncorhynchus		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
	tschawytscha, Oncorhynchus kisutch Oncorhynchus masou and Oncorhynchus rhodurus), Atlantic salmon (Salmo salar) and Danube salmon (Hucho hucho)		
0305.42.00	-- Herrings		
0305.43.00	-- Trout (Salmon trutta, Oncorhynchus mykiss, Oncorhynchus clarki, Oncorhynchus aguabonita, Oncorhynchus gilae, Oncorhynchus apache, and Oncorhynchus chrysogaster)		
0305.44.00	--Tilapias (Oreochromis spp.), catfish (Pangasius spp. ,Silurus spp, Clarias spp, Ictalurus spp,) carp (Cyprinus carpio, Carassius carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.) Nile perch (Lates niloticus), and snakeheads (Channa spp.):		
0305.49.10	Sardines		
0305.49.20	Tunas		
0305.49.30	Mackerel		
0305.49.90	Other		
0305.5	**- Dried fish, other than edible fish offal whether or not salted but not smoked:**		
0305.51.00	-- Cod		
0305.59.10	--- Sardines		
0305.59.20	--- Tunas		
0305.59.30	--- Mackerel		
0305.59.90	Other		
0305.6	**- Fish, salted but not dried or smoked and fish in brine,other than edible fish offal:**		
0305.61.00	-- Herrings		
0305.62.00	-- Cod		
0305.63.00	-- Anchovies		
0305.64.00	--Tilapias (Oreochromis spp.), catfish (Pangasius spp., Silirus spp., Clarius spp., Ictalurus spp.), carp (Cyprinus carpio, Carassius Carassius, Ctenopharyngodon idellus, Hypophthalmichthys spp., Cirrhinus spp., Mylopharyngodon piceus), eels (Anguilla spp.), Nile perch (Lates niloticus) and snakeheads (Channa spp.)		
0305.69.10	--- Sardines		
0305.69.20	--- Tunas		
0305.69.30	--- Mackerel		
0305.69.40	--- Salmon		
0305.69.90	--- Other		
0305.7	- Fish fins, heads, tails, maws and other edible fish offal:		
0305.71.00	-- Shark fins		
0305.72.00	-- Fish heads, tails and maws		
0305.79.00	-- Other		
03.06	**CRUSTACEANS, WHETHER IN SHELL OR NOT, LIVE, FRESH, CHILLED, FROZEN, DRIED, SALTED OR IN BRINE; SMOKED CRUSTACEANS, WHETHER IN SHELL OR NOT, WHETHER OR NOT COOKED BEFORE OR DURING THE SMOKING PROCESS; CRUSTACEANS, IN SHELL, COOKED BY STEAMING OR BY BOILING IN WATER, WHETHER OR NOT CHILLED, FROZEN, DRIED, SALTED OR IN BRINE; FLOURS, MEALS AND PELLETS OF CRUSTACEANS, FIT FOR HUMAN CONSUMPTION.**		
0306.1	**- Frozen:**		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0306.11.00	-- Rock lobster and other sea crawfish		
0306.12.00	-- Lobsters		
0306.15.00	-- Norway lobsters (Nephrops norvegicus)		
0306.16.00	-- Cold-water shrimps and prawns (Pandalus spp., Cragnon cragnon)		
0306.17.00	-- Other shrimps and prawns		
0306.19.00	-- Other, including flours, meals and pellets of crustaceans, fit for human consumption		
0306.2	**- Not frozen:**		
0306.21.00	-- Rock lobster and other sea crawfish		
0306.22.00	-- Lobsters		
0306.24.00	-- Crabs		
0306.25.00	-- Norway lobsters (Nephrops norvegicus)		
0306.26.00	-- Cold-water shrimps and prawns (Pandalus spp., Cragnon cragnon)		
0306.27.00	-- Other shrimps and prawns		
0306.29.00	-- Other, including flours, meals and pellets of crustaceans, fit for human consumption		
03.07	**MOLLUSCS, WHETHER IN SHELL OR NOT, LIVE, FRESH, CHILLED, FROZEN, DRIED, SALTED OR IN BRINE; SMOKED MOLLUSCS, WHETHER IN SHELL OR NOT, WHETHER OR NOT COOKED BEFORE OR DURING THE SMOKING PROCESS; FLOURS, MEALS AND PELLETS OF MOLLUSCS FIT FOR HUMAN CONSUMPTION.**		
0307.1	**- Oysters:**		
0307.11.00	-- Live, fresh or chilled		
0307.19.00	-- Other		
0307.2	**- Scallops, including queen scallops, of the genera Pecten, Chlamys or Placopecten:**		
0307.21.00	-- Live, fresh or chilled		
0307.29.00	-- Other		
0307.3	**- Mussels:**		
0307.31.00	-- Live, fresh or chilled		
0307.39.00	-- Other		
0307.4	**- Cuttle fish and squid:**		
0307.41.00	-- Live, fresh or chilled		
0307.49.00	-- Other		
0307.5	**- Octopus:**		
307.51.00	-- Live, fresh or chilled		
0307.59.00	-- Other		
0307.60.00	**- Snails, other than sea snails**		
0307.7	**- Clams, cockles and ark shells (families Arcidae, Arcticidae, Cardiidae, Donacidae, Hiatellidae, Mactridae, Mesodesmatidae, Myidae, Semelidae, Solecurtidae, Solenidae, Tridacnidae and Veneridae):**		
0307.71.00	-- Live, fresh or chilled		
0307.79.00	-- Other		
0307.8	**- Abolone (Haliotis spp):**		
0307.81.00	-- Live, fresh or chilled		
0307.89.00	-- Other		
0307.9	**- Other, including flours, meals and pellets, fit for human consumption:**		
0307.91.00	-- Live, fresh or chilled		

Tariff Item (HS Heading and Sub-Heading – 6 Digits) and National/Regional Codes (Sub-Headings – 8 Digits)	Description of Goods	Export Product	Import Product
0307.99.10	--- Sea cucumbers (beches-der-mer)		
0307.99.90	--- Other		
03.08	**AQUATIC INVERTEBRATES OTHER THAN CRUSTACEANS AND MOLLUSCS, LIVE, FRESH, CHILLED, FROZEN, DRIED, SALTED OR IN BRINE; SMOKED AQUATIC INVERTERBRATES OTHER THAN CRUSTACEANS AND MOLLUSCS, WHETHER OR NOT COOKED BEFORE OR DURING THE SMOKING PROCESS; FLOURS, MEALS AND PALLETS OF AQUATIC INVERTERBRATES OTHER THAN CRUSTACEANS AND MOLLUSCS, FIT FOR HUMAN CONSUMPTION.**		
0308.1	**- Sea cucumbers (Stichopus japonicus, Holothurioidea):**		
0308.11	-- Live, fresh or chilled		
0308.19	-- Other		
0308.2	**- Sea urchins (Strongylocentrotus spp., Paracentrotus lividus, Loxechinus albus, Echichinus esculentus):**		
0308.21.00	-- Live, fresh or chilled		
0308.29.00	-- Other		
0308.30.00	**- Jellyfish (Rhopilema spp.)**		
0308.90.00	- Other		