

Seafood Processing Standard (SPS)

Issue 5.0 – 1 – February – 2019

***Formerly the Global Aquaculture Alliance's (GAA) Best
Aquaculture Practices (BAP), Seafood Processing Standard,
Issue 4.2***

Previous issue invalid after 1-February-2020

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A. Summary of Key Changes from Issue 4.2 to 5.0

1. Name changed from Best Aquaculture Practices Seafood Processing Standard to the Seafood Processing Standard.
2. New clauses on Food Fraud to meet GFSI v 7.1 (Section 3).
3. HACCP section (3.2) re-organized to accommodate wild-caught species.
4. Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers (commonly referred to as LACFs) section added to HACCP - section (3.2).
5. New clauses on social accountability and employee health and safety (Section 5 and 6).
6. Traceability Elements Section (9.3) added provisions for Wild-Caught Species in addition to new traceability data requirements to comply with the US Seafood Import Monitoring Program (SIMP).
7. Added language to cover mass balance for wild-caught species (9.3 and 9.6).
8. Animal Welfare Section added (Section 8.0).
9. BAP Star System and Star Status Verification (Annex 3). Language from main section of standard moved to Annex 4.
10. Revised finished product testing requirements (Annex 4).
11. The clauses have been reordered in Issue 5.0 to reflect GAA's core pillars of responsible aquaculture (food safety, social responsibility, environmental management, and animal welfare) followed by clauses related to traceability.

B. Introduction

Founded in 1997, the Global Aquaculture Alliance (GAA) is an international non-governmental organization dedicated to advocacy, education and leadership in responsible aquaculture. GAA engages stakeholders worldwide who are dedicated to advancing environmentally and socially responsible aquaculture practices. Through the development of the Best Aquaculture Practices (BAP) certification standards, GAA has become the leading standards-setting organization for aquaculture seafood (see <https://www.aquaculturealliance.org/> and www.bapcertification.org).

In 2018, the Global Seafood Assurances (GSA) was created to address gaps in aquaculture and fisheries certification. The GSA is an international, not-for-profit organization dedicated to providing credible assurances for farm-raised and wild-caught seafood. While the GAA is the primary owner of the Seafood Processing Standard (SPS), Issue 5.0, the standard is designed to work collaboratively with GSA, BAP, and other seafood certification schemes. Details of the GSA can be found at www.seafoodassurances.org.

Background to the Standard and Standard Scope

This document is the Seafood Processing Standard (SPS) – Issue 5.0. The Standard was formerly known as the Best Aquaculture Practices (BAP) Seafood Processing Standard – Issue 4.2.

The full scope of the Seafood Processing Standard includes:

- Food Safety Management and Related Requirements (Sections 1-4)
- Social Responsibility Requirements (Sections 5-6)
- Environmental Management Requirements (Section 7)
- Animal Welfare Requirements (Section 8)
- Traceability Requirements (Section 9)
- Glossary (Annex 1)
- Effluent Management Requirements (Annex 2)
- Additional Traceability Verification Requirements (Annex 3)
- Third-Party Laboratory Sampling and Testing Verification Requirements (Annex 4)
- Water Quality Testing Requirements (Annex 5)

To achieve clarity for standards benchmarking, sections 1-9 have been kept separate from the Annexes. However, compliance with all elements (full scope) are required for certification.

The objective of the Food Safety Management and Related Requirements of the Seafood Processing Standard is to specify the food safety and quality criteria required to be in place within a seafood manufacturing or processing organization to achieve certification to the SPS. The format and content of the Standard is designed to allow an assessment of a Company's premises and operational systems and procedures by a competent third-party Certification Body.

The GSA Seafood Processing Standard covers nearly all aquaculture and wild-caught species as follows:

- Finfish
- Crustaceans
- Molluscs
- Echinoderms
- Medusozoa

The scope of operations covered under this standard include only those processes that are performed in land-based facilities and operated by the facility.

Standards Development

Through the development of its Best Aquaculture Practices (BAP) program, the GAA became the leading standards-setting organization for farmed seafood.

In 2003 it released its first BAP standard for the certification of shrimp farms and in 2004, in recognition of the critical importance of seafood processing in delivering safe products, it published the BAP Standard for Shrimp Processing Plants.

In 2007 this standard was rewritten to cover a wide range of aquaculture products beyond shrimp. In June 2008, the GAA began an expert led, extensive Review Project to restructure its Standards and Certification Management to validate that they met the benchmarking requirement of the Global Food Safety Initiative (GFSI).

This process was completed in 2009 and included re-formatting the 2007 version of the BAP Seafood Processing Standard to enhance it and improve clarity. The result was The GAA BAP Seafood Processing Standard: Food Safety Management Component: Issue 2 May 2009. In August 2012 Issue 2 was slightly modified to incorporate a few additional clauses per GFSI requirements.

In March 2013, revisions were made to the annexes which are not part of the GFSI management component. These revisions affected only Annex 2, Social Responsibility and resulted in the present version – Issue 3. In January 2014, Annex 3 incurred a minor revision for the effluent table and therefore remained as Issue 3 Rev. In April 2015, the standard was revised to align all elements of the standard and interpretation guidelines (IG) for clarity, eliminate redundant clauses, and add new clauses to strengthen certain quality, food safety, social responsibility and traceability components.

Acknowledgements

An expert group (Processing Technical Standards Committee) developed and endorsed the Standard, with representatives throughout the supply chain and interested parties including industry associations, processors, producers, regulators, non-governmental organizations and conformity assessment and standards experts.

The GAA is grateful to the members of the Processing Technical Standards Committee who created the original Seafood Processing Standard and to the other specialists that provided valuable input during the review process:

Ana Acosta, Deli Shrimp Farms
Jon Bell, LSU
Eric Bloom, Eastern Fish
Bart Cox, Ocean Beauty
Robert Csecsinovitis, L&D Foods
Monica Drazba, USAID (Committee Chair)
Larry Drazba, Camarones de Nicaragua
Lisa Goche, Surefish
Dan Herman, US Seafood Inspection Program
Steve Lamming, Foodvest
Bart Lovejoy, Surefish (Seattle)
Peter Marshall, IFQC / Global Trust Ltd.
Bill More, Aquaculture Certification Council Inc.

Steven Newman, Aqualn Tech Inc.
Carlos Mario Ramirez, Cartagena de Camarones
Agnes Saborio, Universidad Centroamericano
Gregg Small, US Seafood Inspection Program
Sally Ananya Surangpimol, Director of Seafood School, Thailand
Steven Thompson, Empress
Leyla Umaña, Ministry of Agriculture, Nicaragua
John Wigglesworth, Darden Restaurants

As many of the above contributors changed companies, locations or became inactive over the years, a standing Plant Technical Committee was formed in 2017 representing industry, social responsibility, and food safety expertise. The GAA is grateful to the members of the committee who contributed to the revision of the standard undertaken in 2017 and early 2018, as well as to the other third-party experts that participated in reviews and comments. The members of the standing Plant Technical Committee include:

Greg Brown, BAP Program Integrity Manager
Lawnin Crawford, Thai Union
Ken Corpron, BAP Program Integrity Analyst
Marco Daza, Independent seafood processing plant auditor
Guy Ewing, Independent seafood processing plant auditor
John Forester, Forester Consulting
Victor Garrido, Quirch Foods
Kathy Janiga, FQS Global
Murali Krishna Bujji, Independent Auditor
Birgitte Krogh-Poulsen, Independent Social Accountability Consultant
Dan Lee, GAA/BAP Standards Coordinator
Cormac O'Sullivan, SGS
Paul Macintyre, Acoura Marine
Peter Marshall, RS Standards
Myles Millholland, NSF
Ralph Parkman, Independent seafood processing plant auditor
Conrad Powell, Independent seafood processing plant auditor
Avery Siciliano, BAP Program Integrity - Social Accountability
Thomas White, NSF

In addition, GAA commissioned a different team at UL to conduct a separate, detailed third-party assessment of Annex 2 – Social Responsibility. This assessment was completed in January 2015, with the results informing several of the changes made to that section.

In February 2018 Annex 2, Social Accountability Management Requirements, was reviewed and updated by Birgitte Krogh-Poulsen, an independent social accountability and labor issues expert. Annex 2 has now been adopted into the primary text of the SPS Standard Issue 5.0 (Section 5-6).

This Standard will be regularly reviewed to ensure its relevance with legislation and market requirements.

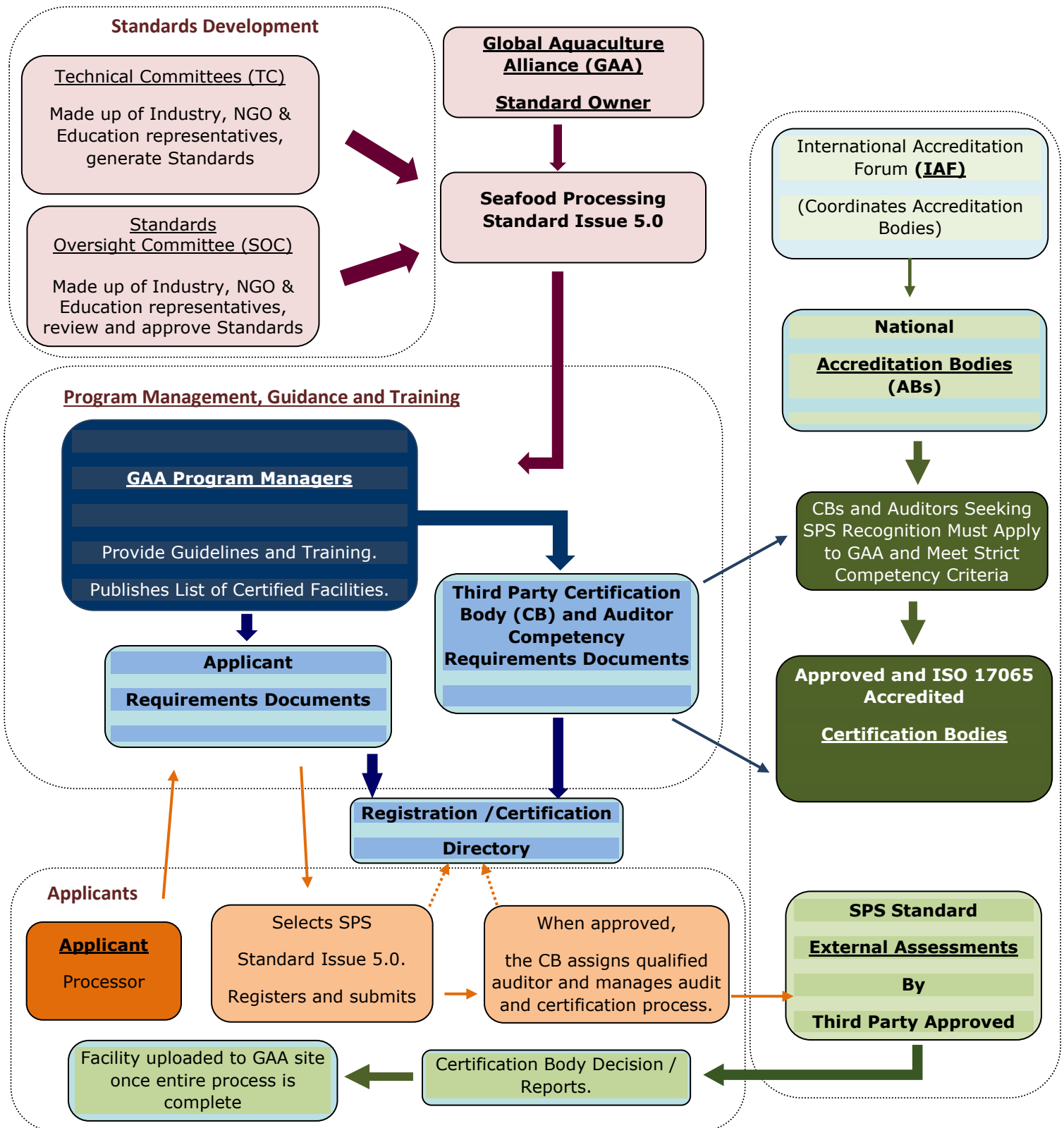
The normative documents from which the initial standard (or subsequent versions as noted) were drawn upon were/are:

- ISO 9000:2015
- ISO 19011:2011
- ISO 17021-1:2015
- ISO/IEC 17065:2012

- ISO/IEC 2:2004
- Global Food Safety Initiative Guidance Document – Issue 7.1
- Eight fundamental ILO conventions on which the Social Component of the SPS Standard is based;
- Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87)
- Right to Organize and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labour Convention, 1930 (No. 29)
- Abolition of Forced Labour Convention, 1957 (No. 105)
- Minimum Age Convention, 1973 (No. 138)
- Worst Forms of Child Labour Convention, 1999 (No. 182)
- Equal Remuneration Convention, 1951 (No. 100)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111)
- FDA Seafood HACCP Standards, 21CFR 123 and GMP's 117NSSP Model Shellfish Codes for molluscan products.

C. The Certification Process

Diagram 1: Summary of the Structures Associated with the Certification Program



Program Management

The Global Aquaculture Alliance is the Program Manager for the Seafood Processing Standard (SPS).

Companies who wish to be certified against the Seafood Processing Standard must apply via the online PORTal available at <https://www.bapcertification.org/> (select “Sign in” then click “Don’t have an account? Create one now!”)

Already certified facilities must re-apply to renew their certification annually.

Mailing Address: 85 New Hampshire Avenue, Suite 200, Portsmouth, New Hampshire 03801 USA

Main Office Telephone: +1-603-317-5225

For questions regarding applications: bapcert@bapcertification.org

Website: www.bapcertification.org and <https://www.aquaculturealliance.org/>

Self-Assessment

New applicants are required to carry out a self-assessment against the standard to ascertain their readiness for a third-party Certification Body audit. Part 2 of the application on the website can be used for the self-assessment. It has the same questions as the SPS audit checklist. Applicants are to correct any deficiencies identified as part of their self-assessment, prior to the third-party audit.

Assessments

Once an applicant’s self-assessment has been carried out and is satisfied that all deficiencies identified have been corrected, the company can proceed to Certification.

To become certified, Applicants must be able to demonstrate compliance with this Standard, through an independent third-party on-site assessment by a GAA Approved Certification Body (CB).

The Certification Body must be approved by GAA and be accredited to ISO/IEC 17065:2012 (Conformity assessment — Requirements for bodies certifying products, processes and services) by an Accreditation Body who is a Member of the International Accreditation Forum and a signatory to the Multilateral Recognition Agreement.

The chosen Certification Body will formulate an agreement between the Applicant and the Certification Body detailing the requirements and commitments needed from the Applicant.

The GAA will maintain a list of approved Certification Bodies.

Assessment Frequency

The frequency of assessment to maintain Certification will be set by GAA. This will be based on the producer’s demonstrated ability to consistently comply with the requirements of this standard.

According to the Seafood Processing Standard, the frequency of assessment will be once per annum. However, re-audits, short notice, or unannounced audits shall also be conducted at GAA and certification body discretion where facility compliance concerns arise.

Transition to New Issues of Standard

When a new issue of the Seafood Processing Standard is released, facilities will have the option to be audited under the older issue for up to one year or, they may opt to be audited under the new issue. New applicants will be audited under the newer issue. Starting on February 1, 2020, all facilities shall be audited against SPS Issue 5.0.

Scope of Audit

Duration of Assessments, and Non-Conformities

The duration of an assessment is dependent on a number of factors such as the size of the operation, number of workers, process lines, HACCP plans, and/or number of species processed. In most cases the duration would be from a minimum of two days (all on site or combined desk top review in advance, then on site). In all cases it shall be sufficient to ensure that a full assessment against the full scope of the SPS Standard, including the Annexes, is achieved.

The GAA will insist upon accurate assessments by the Certification Body with a duration sufficient to ensure integrity of the audit outcome.

The Certification Body shall be mindful that the assessment format is one of systems review and physical inspection of the site and manufacturing process. Time allocation during the Assessment shall be such to provide sufficient and proportionate time for each activity to be carried out in full and where appropriate, additional time given when the Auditor is required to carry out further investigation.

An Assessment will consist of seven elements in accordance with ISO 17021.

- opening meeting
- site assessment (including dormitory and canteen, if applicable)
- collection of any necessary samples
- worker interviews
- review of management systems / records and procedures
- closing meeting
- provision of non-conformance summary to the facility

Any Non-Conformity raised during the assessment will be recorded by the auditor as either:

Severity Level	Definition	Required Action
Critical	Where there is a critical failure to comply with a food safety, social compliance or legal issue or a risk to the integrity of the scheme.	The auditor will immediately inform the Certification Body, who will inform the GAA division. Immediate temporary suspension may ensue pending clarifications.
Major	Where there is a substantial failure to meet the requirements and/or intent of any clause in the Standard but there is no food safety risk, social compliance, legal issue or immediate risk to	Objective evidence verifying the proper implementation of corrective action and closing of non-conformities shall be submitted to the Certification Body in accordance with GAA certification management rules.

	the integrity of the scheme. (Generally, policy)	
Minor	Where absolute compliance with requirements and/or the intent of any clause in the Standard has not been demonstrated. The matter does not rise to the level of Major or Critical and tends to be lower risk issues or isolated instances rather than patterns. Not indicative of an overall breakdown in compliance and systems.	Objective evidence verifying the proper implementation of corrective actions and closure of non-conformities shall be submitted to the Certification Body in accordance with GAA certification management rules.

At the closing meeting, the Auditor shall present his/her findings and discuss all non-conformities that have been identified during the assessment but shall not make comment on the likely outcome of the Assessment.

A written summary of the non-conformities discussed at the closing meeting shall be left with the facility prior to the auditor departing.

Additional Guidance

Under ISO requirements, a signature from the facility representative on the summary of non-conformities discussed at the closing meeting should be obtained by or provided to the CB.

As stated above, the Applicant shall provide to the Certification Body, in accordance with GAA certification management rules, suitable and adequate objective evidence that corrective action has been implemented to correct the non-conformity. This evidence shall also address root cause and future prevention. The evidence will be reviewed, and the CB will respond either confirming closure of the non-conformity or requesting further evidence.

Failure to close out non-conformities in the given timescales will result in certification not being granted or continued.

GAA Re-Audit Policy

GAA reserves the right to authorize CBs to conduct a re-audit of a facility if an audit produces any of the scenarios detailed below:

Type of Non-Conformity	Number of Non-Conformities
Critical Non-Conformities	One or more
Major Non-Conformities	Five or more
Minor Non-Conformities	30 or more
Combined Non-Conformities	4 Majors and 20 Minors
Combined Non-Conformities	3 Majors and 25 Minors

Audit Reporting and the Certification Decision

The Auditor will provide a full report of the assessment, including the details of any non-conformities issued. The Auditor will submit the report to the Certification Body. The report shall include brief statements of objective evidence of both conformity, and non-conformity.

The report **shall follow the format specified by the GAA**. The report shall be issued in accordance with the GAA Report Guidelines.

Within the Assessment Report there shall be a record of the duration of the assessment (expressed as hours) and any reason for the lengthening or shortening of the duration from that which is typical.

The Applicant who commissioned the Assessment owns the Assessment Report. However, a written agreement shall be in place between the GAA-approved Certification Body and the auditee for the authorization of the provision of a Report to the GAA.

When audit reports are sent to the Applicant, they shall be in a secure (PDF) format to prevent modification.

The Assessment report will be considered by a Certification Committee of the Certification Body, who will make the final certification decision.

Appeals

The Applicant has the right to appeal the certification decision of the Certification Body. Appeals should be made in writing within seven days of the Certification decision.

A full response will be given by a Certification Body Manager independent of the auditor and Certification Committee.

GAA Certification

In order to achieve Certification to the Seafood Processing Standard, the Applicant must meet the requirements of all components of the Seafood Processing Standard. This means all components of the standard including the Annexes must be in compliance.

The Standard and the Four Pillars of Responsible Aquaculture and Fisheries Management

The Seafood Processing Standard Issue 5.0 has been reordered from the previous Issue 4.2 to align with the four pillars of responsible seafood production.

The Four Pillars:

- Food Safety
- Social Responsibility
- Environmental
- Animal Health and Welfare

Traceability connects the four pillars of the SPS Standard.

D. Standard Requirements

1.0 Regulatory Management

- 1.1 The facility shall demonstrate that they are entitled to process and produce seafood at the site applied for.
- 1.2 Facilities shall ensure that:
 - 1.2.1 Documents are available to prove legal land and water use by the facility.
 - 1.2.2 Documents are available to prove all business and operating licenses have been acquired by the facility.
 - 1.2.3 Documents are available to prove compliance with applicable environmental regulations for construction and operation.
 - 1.2.4 Documents are available to prove that the facility is aware of, keeps up-to-date, and complies with, all relevant legislation of both the country they produce seafood in, the countries they export to, and source countries if applicable. This includes all food safety regulations.

2.0 Quality Management System (QMS)

2.1 General Requirements

- 2.1.1 The facility shall have an appropriate Quality Management System that is documented, authorized by senior management, effectively implemented, maintained and continually improved.
- 2.1.2 The QMS shall be reviewed and updated as often as necessary, especially after a food safety incident or product recall, with a minimum frequency of annually.
- 2.1.3 Facilities shall have a copy of the current Seafood Processing Standard on site. Copies may be a printed or electronic version.
- 2.1.4 The Quality Management System shall include a clear Food Safety Management System based on HACCP. (This can either be part of the QMS or a separate document).
- 2.1.5 The Quality and Food Safety Management Systems shall:
 - 2.1.5.1 Identify the processes for the quality and food safety management systems.
 - 2.1.5.2 Determine the sequence and interaction of these processes.
 - 2.1.5.3 Determine criteria and methods required to ensure the effective operation and control of these processes.
 - 2.1.5.4 Ensure the availability of information necessary to support the operation and monitoring of these processes.

- 2.1.5.5 Implement action necessary to achieve planned results and continual improvement.

2.2 Quality Manual

- 2.2.1 The facility shall have an appropriate Quality Manual which incorporates Food Safety that is readily available to all personnel involved in quality management. The Quality Manual shall include controls that address all requirements of the SPS Standard, including the Annexes. Copies may be a printed or electronic version.
- 2.2.2 The Quality Manual shall include the products to be processed. The Quality Manual shall also include documented procedures or specific reference to them.
- 2.2.3 The Quality Manual shall clearly define all of the quality attributes for all raw material received, and finished products produced, that shall be monitored and controlled to ensure conformance to legal requirements and customer and facility specifications.
- 2.2.4 The Quality Manual shall define the attributes cited in 2.2.3 to include, at a minimum, conformance requirements for: labeling, net weight, size, proper sensory attributes, color, and all appropriate defects such as presence of shell fragments, bones, skin, bruising, trimming defects, canning seam defects, and any other appropriate parameters.
- 2.2.5 The Quality Manual shall define the sampling size, testing frequency, procedures, maximum or minimum tolerance levels, corrective action, responsible personnel, and recordkeeping requirements associated with all of the quality management procedures.

2.3 Quality Management System Policy Statement

- 2.3.1 As part of the Quality Manual, the facility shall have a clearly defined, documented Quality Management System Policy statement, authorized by senior management, that reflects its commitment to the entire scope of the SPS Standard, including the Annexes.
- 2.3.2 The facility shall define, document, and ensure that food safety and quality objectives are monitored with measurable outcomes.

2.4 Management Responsibility and Organizational Structure

- 2.4.1 The facility shall have an organizational chart that reflects the current plant management and, at a minimum, those employees and their back-up personnel responsible for compliance with quality assurance, legality, and food safety requirements.
- 2.4.2 The facility shall also define and document job functions, responsibilities and reporting relationships of at least those employees whose activities affect product quality, legality and food safety.
- 2.4.3 The facility shall clearly identify the Staff Member accountable for the maintenance of the Quality Management System and for the company meeting and adhering to all of the requirements of the Seafood Processing Standard.
- 2.4.4 The facility shall identify the membership and competency of the HACCP Team. Competency shall be demonstrated through documented evidence of HACCP training.
- 2.4.5 Facilities that produce shelf-stable acidified foods and low-acid canned foods in hermetically sealed containers, i.e. canning, retorts, aseptic processing and product formulating systems (including systems wherein water activity is used in conjunction with

thermal processing) shall demonstrate their compliance with the regulations to control these processes. For facilities operating in the USA, guidance can be found at: <https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ucm569789.htm>.

- 2.4.6 Operators of the processing systems detailed in 2.4.5 (including container closure inspectors) shall be under the supervision of a person who has satisfactorily completed the prescribed course of instruction approved by the US FDA (or equivalent) for giving instruction appropriate to the preservation technology involved.

2.5 Management Commitment

- 2.5.1 The facility's senior management shall demonstrate their commitment to the development, implementation, and continuous improvement of all elements of the Quality Management System in order to ensure compliance with the entire scope of the Seafood Processing Standard (including Annexes).

2.6 Resource Management

- 2.6.1 The facility's senior management shall determine and provide, in a timely manner, all the resources needed to implement and improve the processes of the QMS and to address customer satisfaction.

2.7 Management Review

- 2.7.1 The facility's senior management shall be involved in the QMS review of all plans, procedures and systems necessary for compliance with the full scope of the Seafood Processing Standard (including its Annexes).
- 2.7.2 Management reviews shall occur at planned intervals and at a minimum annually. These reviews shall ensure the plans, procedures and systems are up-to date and continue to be effective.
- 2.7.3 Minutes of the management review meeting shall be maintained and available for review. The minutes shall include, at a minimum: attendees, agenda items, key decisions, and follow up actions with time scales and accountabilities. Follow up actions shall be closed out in a timely manner and the results shall be documented.

2.8 Purchasing & Specifications – Items

- 2.8.1 The facility shall document all items purchased that impact food safety, regulatory requirements and quality. The purchasing process shall be controlled to ensure these items conform to requirements. (Examples of items include raw material, finished product, packaging, additives and ingredients. See clause 2.9.1 – purchasing of shrimp from peeling/de-heading sheds is prohibited).

Additional clauses for Wild-Caught Species

- 2.8.1.1 A procedure shall be in place to identify and control all hazards associated with receiving/accepting/purchasing of wild harvested raw materials from **private independent harvesters**.
- 2.8.1.2 Determination for acceptance shall be based on, but not limited to, HACCP criteria as indicated for source control.

2.8.1.3 All raw materials acquired from wild harvest sources shall be in full compliance with local, tribal, state, federal, and international harvesting regulations.

2.8.2 The facility shall demonstrate control as noted in 2.8.1 through, at a minimum: the appointment of designated purchasing personnel and written purchasing procedures. (See also 2.10 – “Supplier Approval and Performance Monitoring”).

2.8.3 The facility shall also develop and maintain written specifications that include, at minimum, food safety, legality and quality for the items stated in clause 2.8.1.

2.8.4 The specifications shall be agreed to between the facility and their suppliers, and shall be signed, dated and authorized by appropriate parties.

2.8.5 Specifications shall be kept up-to-date and periodically reviewed, which shall occur at a minimum, annually.

2.8.6 Specifications shall be readily available for reference by designated personnel.

2.9 Outsourcing & Specifications – Processes and Services

2.9.1 The facility shall exercise proper control over any entity that is used to outsource any processes that may have an impact on food safety, legality, quality, traceability and social responsibility. (See Annex 3 regarding traceability for BAP star status).

Examples of commonly outsourced processing services include, but are not limited to:

- Slaughter, bleeding, eviscerating
- Packing, repacking
- Labeling (especially for canned product)

This refers to outsourced processing activities **OTHER THAN the peeling or de-heading of shrimp**. See 2.9.5, below.

2.9.2 The facility shall demonstrate control over any outsourced processing at least one step before and one step after the final product(s) is/are produced. Control measures shall include, but are not limited to: audits, laboratory testing of outsourced materials, and traceability of outsourced products.

2.9.3 The control measures over such outsourced processes shall be identified, documented and monitored to ensure compliance with the full scope of the SPS standard, including its Annexes. Outsourcing of value-added/finished product processing steps (if any) may only be done at other SPS-certified processing plants, to avoid causing a break in the certification traceability chain.

2.9.4 There shall be a policy statement AGAINST allowing the temporary use of unapproved outsourcing service provider.

2.9.5 The facility shall not outsource to, use, or buy shrimp from entities known as “peeling or de-heading sheds”. These are defined as independent, third-party “satellite” operations. To be eligible for SPS certification, the peeling and heading of shrimp shall occur only in the facilities owned by and completely controlled by a SPS-certified processing plant. The facilities must be located onsite or in close proximity to the SPS-certified processing plant in order to ensure that they are included as part of the scope of the annual SPS audit. This prohibition does not include value-added processing that may be carried out on frozen pre-processed material.

- 2.9.6 The facility shall appoint a designated management person or persons with the authority to approve and/or disapprove outsourced processing activities and each associated service provider.
- 2.9.7 The facility shall keep an up-to-date list of all entities they are outsourcing processes to, and the specific activity that is outsourced to each.
- 2.9.8 Specifications for outsourced processes as described in 2.9 shall be developed by the facility and included as part of a signed contract or service agreement between the facility and the provider. These specifications shall include compliance criteria associated with food safety, quality, legality, traceability and social responsibility. (See also 2.10 – “Supplier Approval and Performance Monitoring”).
- 2.9.9 Specifications shall be kept up-to-date and periodically reviewed (which shall occur at a minimum, annually). Specifications shall be readily available for reference by designated personnel.

2.10 Outsourcing & Specifications – Supplier Approval and Performance Monitoring

- 2.10.1 The facility shall exercise proper control over any outsourced supplier or service that may have an impact on food safety, legality, quality, traceability and social responsibility. There shall be a policy statement that normally disallows the use of unapproved outsourced supplier or service provider.

Examples of commonly outsourced services include, but are not limited to:

- Pest control
 - Cleaning services
 - Waste removal
 - Laboratory testing
 - Product storage/frozen warehousing
 - Payroll and recruiting services
 - Raw material transfer/delivery services (i.e. tender vessels, shipping courier)
 - Laundry services (for personal protection clothing such as aprons, smocks, rain gear, gloves, etc.)
 - Catering services
 - Calibration services
 - Equipment maintenance and repair
- 2.10.2 The facility shall have a supplier approval program which includes a list of approved suppliers and service providers as described in 2.9 above. This list shall be kept up-to-date and reviewed, at a minimum, annually.
- 2.10.3 The supplier approval program shall include all suppliers described under 2.10.1. The program shall also include criteria for approval, and the facility’s policy and/or procedure for temporary use of unapproved suppliers.

Examples of criteria for approval:

- Suppliers must have traceability systems in place to allow trace-backs to vessel or wholesaler for wild-caught or individual farm for farmed species. (See Traceability, section 9.0)
- Certification information (where applicable)
- Certificate of analysis (for certain ingredients or additives)
- Regulatory Authority Audits

- Visual assessment (packaging materials)
- Supplier audit, either by plant personnel or third-party
- Risk assessment – especially for species with potential toxicity or allergen issues, histamine, molluscan shellfish, chemical contamination, etc.

2.10.4 The facility shall have in place a procedure for regularly monitoring the performance of the suppliers described in 2.8 and 2.9. This monitoring shall be effective and occur annually, at a minimum. Acceptable performance criteria shall be defined as well as actions to be taken where performance does not meet criteria. The results of the performance assessments and follow-up actions shall be recorded.

2.11 General Document Requirements

2.11.1 The facility shall have a written document control procedure in place that ensures all documents and procedures necessary for compliance with the full scope of the Seafood Processing Standard (including Annexes) are in place and effectively controlled.

2.11.2 The document control procedure shall include how versions are controlled, persons with the authority to modify and authorize them, and measures to ensure outdated or obsolete versions are not used.

2.12 Procedures

2.12.1 The facility shall prepare and implement standard operating procedures, quality procedures, food safety management procedures, social accountability procedures, and work instructions for all processes and operations having an effect on product safety, legality and quality.

2.12.2 The facility shall have documented Sanitation Standard Operation Procedures (SSOPs), Good Manufacturing Practices (GMPs), and Hygiene policies and procedures that comply with the standards of both the country in which the facility is located and those countries that receive the final products.

2.13 Record Keeping

2.13.1 The facility shall maintain records that demonstrate the effective control of product and systems to ensure compliance with the full scope of the Seafood Processing Standard (including its Annexes). Electronic records are acceptable provided they are easily accessible during the audit.

2.13.2 The facility shall ensure that all records are 100% complete, securely stored, and readily accessible when needed.

2.13.3 Records shall be retained for a time period required to meet customer or legal requirements. At a minimum this shall be product shelf life plus one year.

2.13.4 All food safety, quality, sanitation, and other records shall be filled out according to the frequencies specified in their associated plans (Quality Manual, HACCP plan, SSOP, GMP and Hygiene plans and policies).

2.13.5 All monitoring and corrective action records shall be reviewed by an individual other than the person filling them out, and who is qualified to make such evaluations.

2.13.6 All records and other documentation shall be prepared accurately and not show evidence or indication of falsification.

- 2.13.7 Where local, national, or international government auditing or inspection programs exist, these records shall be made available for review by the GAA auditor.
- 2.13.8 HACCP Records shall be reviewed by a HACCP-trained individual. For the records review of Low Acid Canned Foods (LACFs) product records reviewer must have had a higher level of training, for example; completion of the US FDA Better Process Control School course or equivalent, and who has successfully completed training in the development and application of risk-based preventative controls.

2.14 Corrective and Preventive Action

- 2.14.1 The facility shall ensure that procedures for the determination and implementation of corrective action, in the event of any non-conformity, are prepared and documented. These shall cover the full scope of the SPS Standard (including its Annexes) and shall also address how future reoccurrences will be prevented.
- 2.14.2 Non-conformities must be recorded, and it is the facility's responsibility to investigate the cause of the problem(s) and ensure that an adequate response is taken by specified personnel.
- 2.14.3 These actions shall be included in a regular review of activities and systems. If time scales for actions are not met, it is expected that the reason for this is recorded. The review shall include the effectiveness of the action (e.g. whether the action has ensured that similar non-conformities will not occur).

2.15 Control of Non-Conformity

- 2.15.1 The facility shall ensure that any product which does not conform to requirements, is clearly identified and controlled to prevent unintended use or delivery. This shall include all products that do not conform to food safety, quality, legality, or customer specification requirements.
- 2.15.2 These activities shall be defined in a documented procedure that is securely stored and readily accessible when needed.

2.16 Serious Incident Management/Business Continuity Plan

- 2.16.1 The facility shall have a documented procedure that describes how product safety and quality will be maintained in the event of a serious incident such as fire, flood, chemical leaks, extended power outages, and structural integrity issues.
- 2.16.2 Serious incidents that occur at the facility as described in 2.16.1 shall be documented. Records of product handling and disposition during and after the incident shall be maintained.

2.17 Product Recall

- 2.17.1 There shall be a written Recall Plan that addresses how product that has been shipped will be identified, located, and recalled in the event of rejection or non-conformity related to food safety, legality or quality. This plan shall also ensure that non-conforming or recalled products are not mixed with others or released inappropriately.
- 2.17.2 The Recall Plan shall list all personnel that are part of the "recall team."

- 2.17.3 The recall plan shall be tested at a minimum annually through a “mock recall” test. The results of the test shall be documented. The results shall identify, at a minimum: the “mock” incident, identification of all product affected and where it was shipped, how customers that received it were (or would have been) notified, and what percentage of product was successfully identified to be “recalled”. Each test shall also record how long the mock recall took.
- 2.17.4 The “mock recall” trials shall successfully identify 100% of the product (except for natural wastage e.g. drip and weight tolerances due to the use of tares and equipment accuracy). Corrective action shall be taken for any deficiencies identified in the mock recall or traceability system. These corrective actions shall be documented.
- 2.17.5 There shall be a procedure that identifies a designated area for recalled product as well as a designated management person for determining disposition or disposal.

2.18 Customer Complaint Procedure

- 2.18.1 The facility shall prepare and implement an effective system for the management of customer complaints to control and correct shortcomings in food safety, quality and legality.
- 2.18.2 All customer complaints shall be documented. Records shall include: the nature of the complaint, investigation, product affected, root cause analysis, corrective and preventive action, product disposition where appropriate, and final complaint resolution.

3.0 Food Safety Management

3.1 Food Safety Management System

- 3.1.1 All elements of the facility's Food Safety Management System (e.g. the HACCP, GMP, Hygiene, SSOP, Food Defense Plan, and other related plans) shall be documented, implemented, maintained and continually improved.

3.2 Food Safety – Hazard Analysis and Critical Control Point (HACCP) Compliance

- 3.2.1 The facility's HACCP system shall be systematic, comprehensive and thorough and shall be in compliance with both local and national legislation and the legislation of the countries the facility exports to.

For All Species

- 3.2.2 The HACCP plan and hazard analysis shall include, at minimum (depending upon the country of operation and the country to which the product will be exported), at least those hazards identified by Codex Alimentarius, or the USFDA's “Fish and Fisheries Products Hazards and Controls Guide” (aka “FDA Hazards and Controls Guide”), Fourth Edition, April 2011, or both, including any subsequent revisions that were published after April 2011, depending upon the country of operation and the country to which the product is exported. Where local or export country(ies) requirements are stricter, those requirements shall prevail. In the absence of specific legislation or guidance for local or export country(ies), the hazards defined in the aforementioned “FDA Hazards and Controls Guide” shall become the default position to which all facilities shall comply.
- 3.2.3 The scope of the HACCP system shall be defined per product, per process line/or process-location. It shall include verified process flow diagram(s), the description of the product and its presentation(s), intended use, and method of distribution. The accuracy of

the process flow diagram shall be verified, at a minimum, annually by all members of the HACCP team.

- 3.2.4 All facilities shall apply the seven HACCP-principles to the HACCP System.
- 3.2.5 All Critical Control Points (CCPs) shall be properly identified and procedures accurately followed in order to control or prevent hazards.
- 3.2.6 The HACCP plan and hazard analysis shall include a list of all allergens present at the facility, including the various species of seafood handled, and each species must be identified by their scientific name. All allergens shall be effectively controlled throughout receipt, storage, handling and use.
- 3.2.7 In addition to the requirements stated in 3.2.6, the facility shall demonstrate that they have adequately labeled the presence of allergens. The HACCP plan must address how the facility will label the presence of allergens in the finished product.
- 3.2.8 All critical limits set at each CCP shall be properly determined and followed. Critical limits shall be based on validated processes, industry standards or scientific and regulatory guidance.
- 3.2.9 Monitoring procedures adequate to control each hazard at each CCP shall be developed and documented in the HACCP plan. These procedures shall include the monitoring frequency, methods, responsible employees, and associated records.
- 3.2.10 The facility shall identify in the HACCP plan, corrective actions that shall be taken any time a critical limit is not met at any CCP. The corrective actions taken shall be documented. The corrective actions shall include product disposition, as well as root cause and future prevention. (Reference also clause 2.15 “Control of Non-Conformity”).
- 3.2.11 A properly functioning metal detector or x-ray machine shall be in place to check all frozen finished product unless the facility can demonstrate, through hazard analysis in its HACCP Plan, that it is not reasonably likely to expect that metal fragments could enter the food.

For Farm-Raised Species

- 3.2.12 Facilities shall include in the hazard analysis, potential hazards from environmental contaminants at the farm sites they purchase from. This includes chemicals, pesticides or heavy metals that may originate from industrial or agricultural operations near the producing farm.
- 3.2.13 The HACCP plan shall include monitoring at reception (i.e. receiving) for residues of the aquaculture drugs listed in Annex 4, Table III as appropriate for the species.

The facility shall collect 1 sample per receiving lot. (See Annex 1 Glossary for the definitions of “Receiving Lot – Farm Suppliers” and “Receiving Lot – Plant Suppliers”).

The facility must have a well-documented testing program in place. Where this program deviates from that specified above (1 sample per receiving lot) the facility must demonstrate that this is based on risk assessment or historical analysis of test results. Refer to Annex 4 Guidelines for testing requirements for details and clarification on reduction of requirements.

Tests may be performed by qualified in-house laboratories or by use of third-party labs.
- 3.2.14 Antibiotics or chemicals that are proactively prohibited in the producing or importing country shall not be used in feeds or any other form of treatment. Further, the facility shall include in their HACCP plan, testing for other approved and unapproved and/or banned drugs at reception, beyond those listed in Annex 4, Table III, where compliance with local

or country of export laws or buyer specifications require it. (Refer to Section 1.0 – “Regulatory Management” requirements).

- 3.2.15 For Value Added/Secondary Re-processors: Processors in this category that receive processed product from a Primary (first) processor, compliance with clause 3.2.13 is required in one or more of the following ways:
- A. Address the hazard in the hazard analysis and conduct testing at reception
 - B. Address the hazard in the hazard analysis and justify, where the conclusion is that the primary processor must control it, how that is to be assured. (I.e. incorporate the requirement for them to test as part of the Purchasing specifications and Supplier Approval and Performance Monitoring requirements in sections 2.8 and 2.10).
 - C. Any species which is known to be consumed raw and/or cold smoked must have a surface pathogen elimination step which will result in a product free of Listeria and must be labeled as such.

3.3 Low Acid Foods and US Low Acid Food Regulation

- 3.3.1 Facilities producing Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers (referred to as LACFs) shall be compliant with US FDA regulations governing processing of these products.

3.4 Cured, Salted, and Smoked Fish

- 3.4.1 Facilities producing cured, salted, and/or smoked products shall apply the guidelines for such products as specified in the AFDO Code for Cured, Salted, and Smoked Fish (October 2017).

3.5 Food Safety – HACCP Procedures Assessment

- 3.5.1 The HACCP Team shall meet regularly to review HACCP compliance and assess the need for plan revisions. The team shall consist of appropriately qualified multi-disciplinary personnel (i.e. operations, quality assurance, and engineering/maintenance, at the very least) with a designated team leader defined. Such reviews shall be conducted to assess effectiveness and shall be conducted in advance of any change in the product, processes, ingredients, etc. that may have an impact on food safety. Records of these meetings shall be kept. Where there have not been any changes, such meetings and plan assessments shall occur at minimum annually.
- 3.5.2 Such a review shall also evaluate the need for changes to other components of the facility’s food safety management system, including but not limited to specifications, supplier performance monitoring, food safety policy and food safety objectives. Usage of chemicals shall also be reviewed to ensure that such usage conforms to the regulations of both the country where production occurs, and the country to which the products will be exported.

3.6 Food Fraud

- 3.6.1 The facility shall have a documented food fraud vulnerability assessment procedure (VACCP Vulnerability Assessment Critical Control Points) in place to identify potential vulnerability and prioritize food fraud mitigation measures.
- 3.6.2 The food fraud plan and risk assessment shall be reviewed, at minimum, annually.
- 3.6.3 The facility shall have a documented plan in place that specifies the measures the organization has implemented to mitigate the public health risks from the identified food fraud vulnerabilities.

- 3.6.4 The facility's Food fraud mitigation plan shall be supported by the organization's Food Safety Management System.

3.7 Food Safety – Food Defense

- 3.7.1 The facility shall have a documented risk assessment system and procedure (TACCP - Threat Assessment Critical Control Points) in place to identify and address food defense risks. This shall be established, implemented and maintained to prevent, reduce or eliminate these risks and shall be included in the facility's Food Safety Management System. The Food Defense plan and risk assessment shall be reviewed, at minimum, annually. (Note: Food Defense risks are facility security/sabotage related. For instance: tampering or adulteration of product or the water supply by entry of unauthorized personnel, entry by disgruntled or terminated employees, uncontrolled access to storage areas, or access to and misuse of toxic compounds in the facility).
- 3.7.2 Employee members responsible for the implementation of the food defense plan (the "food defense team") shall be clearly identified in the document. They must demonstrate sufficient knowledge in this area to ensure the effective implementation of the food defense plan. The food defense team must ensure that the mitigation strategies are assessed to verify that the food defense plan is being effectively implemented.

3.8 Food Safety – Plant Sanitation – Pest Control

- 3.8.1 The facility shall have in place an effective pest control program/system that prevents and controls risk of pest infestation and harborage areas inside the facility and on facility grounds. Pest control shall be performed by either a licensed third-party or properly trained personnel within the facility. Chemicals used in food facilities shall meet at minimum US EPA standards.
- 3.8.2 Litter and discarded equipment shall be properly disposed of to avoid the creation of pest harborage areas.
- 3.8.3 Windows, doors, walls and other openings to the outside of the facility shall be adequately sealed, screened or covered to exclude pests. In addition, facilities shall ensure all proper steps are taken to prevent pest entry through effective building design, maintenance, operational procedures and employee training.
- 3.8.4 There shall be a sufficient number of pest traps at appropriate locations.
- 3.8.5 All pest traps (electronic, baited, etc.) shall be located so as not to contaminate food-processing areas. Poison bait traps shall not be located inside food production or storage areas.
- 3.8.6 The facility shall have a program for pest trap inspection that includes a map of trap locations, regular cleaning and records of pests caught.
- 3.8.7 Pest control inspections shall be assessed and analyzed for trends on a regular basis, at a minimum annually. The results of the analysis shall be used for improvements in pest control systems.
- 3.8.8 All pest traps identified on the pest control map in and around the facility and in storage areas shall be in place and fully functional.
- 3.8.9 Processing and primary storage areas in the facility shall show no evidence of pests or pest activity (insects, rodents, birds, dogs, cats, feces, urine, etc.).
- 3.8.10 All items stored in warehouse areas shall be placed on pallets above the floor and away from walls. All food ingredients and packaging shall be stored in clean areas free of dust and debris and covered and protected from pests and other contaminants.

3.9 Food Safety – Plant Sanitation – Facility Design and Construction

- 3.9.1 The facility's grounds and outside areas shall be maintained to prevent worker safety hazards, and environmental, hygiene and pest harborage risks. This shall include proper drainage, and elimination of shrubs, high grass, equipment and other materials close to the facility.
- 3.9.2 All food contact areas shall be constructed of food grade materials. Bare wood, cloth, corrosive or flaking materials or other non-food grade substances are prohibited.
- 3.9.3 Restrooms and other personal hygiene areas shall open directly into transition areas with proper sanitation controls and not directly into processing areas inside the plant.
- 3.9.4 Internal floors and walls shall be made of a smooth, impermeable material that can be readily cleaned and sanitized.
- 3.9.5 The corners between the walls and floors shall either be rounded, or properly sealed and maintained to prevent the accumulation of waste and contaminants.
- 3.9.6 Floors of the facility shall have adequate drainage, including during peak water volumes, to avoid pooling and the accumulation of waste and contaminants.
- 3.9.7 The facility shall maintain sufficient separation of space between finished and unfinished products to prevent cross contamination.
- 3.9.8 All equipment shall be designed, installed, constructed, and used to prevent product contamination.

3.10 Food Safety – Plant Sanitation – Maintenance

- 3.10.1 An effective maintenance program, including preventative maintenance, shall be in place and documented. This program shall include walls, floors and all items of equipment and other food contact surfaces critical to product quality and safety. The program shall include at a minimum: A. An itemized list of items and areas to be maintained B. A preventative maintenance schedule C. Records of inspections and maintenance performed.
- 3.10.2 There shall be a foreign materials prevention program (or series of separate programs), that prevents contamination from all forms of foreign material, including but not limited to paint, wood, glass, plastic, metal, hair, rust, etc.
- 3.10.3 All overhead lights in food production and primary storage areas shall be shielded or made of shatterproof material to prevent glass contamination of product from broken bulbs.
- 3.10.4 The facility shall provide sufficient lighting to properly carry out processing activities.
- 3.10.5 The roofs of food production, food packaging, ingredients and chemical storage areas shall be maintained. There shall be no evidence of leaks, mold, rust or flaking paint.
- 3.10.6 Painted surfaces in food production and primary storage areas shall be in good condition and free of chipping or flaking.
- 3.10.7 All floor surfaces in food production and primary storage areas shall be in good condition, and free of significant cracks or gouging. Where minor damage exists, the floor shall show that attempts to properly keep up with the maintenance are being made through evidence of repair and appearance on a regular maintenance schedule.
- 3.10.8 All food contact surfaces, including equipment and utensils, shall be in good condition and free of cracks, pits, gouging and abraded areas.

3.11 Food Safety – Plant Sanitation – Cleaning and Sanitation

- 3.11.1 Work surfaces that come in contact with food products (tables, equipment, utensils, employee gloves and clothing) shall be in good condition and adequately cleaned and sanitized before use. This includes walls in production and food storage areas which shall be kept clean and free of fungal growth.
- 3.11.2 Facilities shall maintain a written SSOP that details cleaning frequency and designates implementation and verification responsibilities. The SSOP shall include a risk-based environmental monitoring program for assessing the effectiveness of all cleaning and sanitizing activities that includes all high-risk areas.
- 3.11.3 Planned and frequent microbial analyses (aka “swab tests”, ATP or protein residue tests) of food contact areas shall be carried out after cleaning and sanitizing to verify the adequacy of the sanitation regime.
- 3.11.4 All records of verification analyses required under 3.11.3 shall include total or standard plate count, *Staphylococcus aureus*, *Listeria monocytogenes*, *Salmonella spp.*, and total coliforms at minimum. These records shall reflect consistent effort to improve sanitation, as evidenced by analyses of trends in microbiological counts over time.

3.12 Food Safety – Plant Sanitation – Personnel

- 3.12.1 The facility shall have a documented personal hygiene standard and program that prevents product contamination that, at a minimum, includes the below elements and other related elements of this standard - as well as additional measures as appropriate based on risk.
- 3.12.2 If local laws require regular health examinations of employees, records that report exam results shall be available for all workers in food production and packing areas.
- 3.12.3 Medical screening procedures shall be in operation for employees, contractors and visitors.
- 3.12.4 All employees shall be monitored for signs of contagious illnesses (coughing, sneezing, sores, skin infections, etc.) and personnel related food borne illness (diarrhea, fever, jaundice, etc.) upon arrival and during work in food production and packing areas, those found to be ill shall be removed from the plant site (records shall be maintained).
- 3.12.5 The facility shall have a policy in place that requires employees to report immediately to their supervisor if, during the work day, they become injured or ill.
- 3.12.6 All workers in food production and packing areas shall not wear jewelry (including earrings, facial piercings, watches, bracelets, false fingernails, false eyelashes, etc.), and shall not carry items in pockets. Medical bracelets, necklaces or wedding bands may be worn with proper protection to prevent food contamination with management approval. Such jewelry shall be smooth with no stones or recessed areas.
- 3.12.7 Workers shall wear appropriate protective clothing (clean aprons, hair confinement, face masks, boots, etc.) for their assigned tasks.
- 3.12.8 Employees shall keep food and drink out of processing, packing and storage areas, and shall not smoke or chew tobacco or gum. This clause also covers the use of e-cigarettes, hallucinogenic or recreational drugs.
- 3.12.9 Employees shall keep personal items including any personal medication out of processing, packing and storage areas.
- 3.12.10 The facility shall have a sufficient number of foot baths, foamers or sprayer systems, hand-washing/hand dip and sanitation stations located throughout food production areas. These shall be properly maintained and not easily avoided in order to promote good sanitary practices.

- 3.12.11 The facility shall monitor and enforce employee compliance with proper sanitary procedures, hygiene policies, and the use of sanitation stations described in 3.12.10. Workers shall use hand-washing stations routinely throughout the work period, or as needed to maintain the sanitation levels outlined in the facility SSOPs.
- 3.12.12 The facility shall provide a sufficient quantity of sanitary supplies (or where culturally applicable, washing facilities), disposable hand towels or other drying mechanism, and soap in employee sanitary facilities. Mechanical air drying shall be tested periodically for microbiological contaminants.
- 3.12.13 The facility shall monitor sanitary facilities for proper operation and stocking as described in 3.12.12. Facilities shall further ensure employee compliance with proper use of sanitary facilities, including hand washing after toilet use.
- 3.12.14 There shall be a documented policy that instructs contractors and visitors on facility sanitation and hygiene policies, including hand washing, control of personal items, and the proper use of protective clothing. They shall be required by the facility to follow these policies.

3.13 Food Safety – Plant Sanitation – Ice, Water, Air, Gases and Steam

- 3.13.1 Water used in food production areas shall be checked at least every six months by an accredited independent third-party laboratory for microbial and chemical contamination as described in Annex 5. Discharge of retort cooling water shall be monitored internally and by third-party laboratory in accordance with 21 CFR Part 123, 21 CFR Part 113, and/or facility HACCP plan.
- 3.13.2 Water used in food production areas shall be assured safe and in compliance with US FDA and/or EU standards for microbial and chemical contaminants and disinfection treatments. Routine water quality checks during production days shall be carried out by the facility for residual disinfectant levels (such as chlorine or ozone). These checks shall occur at a minimum daily. The facility shall also test as for the presence of coliforms at minimum every 2 weeks.
- 3.13.3 The facility shall prevent water contamination through backflow with proper water supply back flow/back pressure values and proper hose storage.
- 3.13.4 All ice used on product or food production areas in the facility that is purchased from outside sources shall be tested at least every six months by a third-party laboratory accredited to ISO 17025 or equivalent for microbial and chemical contamination as described in Annex 5.
- 3.13.5 All ice produced by the facility itself using water that complies with clauses 3.13.1 and 3.13.2 shall be tested at least every six months by a third-party laboratory accredited to ISO 17025 or equivalent ONLY for the microbial parameters listed in Annex 5.
- 3.13.6 Ice shall be stored in hygienic and well-maintained areas free of dripping condensation, rust, dirt and other contaminants. Ice shall not be re-used and shall be handled to avoid cross-contamination from utensils, employee garments, storage and transport bins, etc.
- 3.13.7 Routine ice quality checks, regardless of source, shall be carried out by the facility for the presence of coliforms at a minimum, every 2 weeks.
- 3.13.8 Facilities shall have a procedure in place that ensures the safety of air, compressed air, steam, or other gasses used in direct contact with food or as an ingredient in food. The facility shall monitor these items to verify that they do not pose a risk of contamination to food or food contact surfaces.

3.14 Food Safety – Chemical Products used for Plant Sanitation

- 3.14.1 All chemicals, including cleaners, sanitizers, chlorine, boiler chemicals, etc. shall be approved for use in food plants and used per manufacturer's instructions at recommended safe dosage levels.
- 3.14.2 Monitoring records for all chemicals shall be maintained and readily available. These shall include at minimum the name of the chemical, concentration level, and tests performed to verify the correct concentration.

3.15 Food Safety – Plant Sanitation – Ventilation

- 3.15.1 There shall be no evidence of condensation which has the potential to contaminate product, packaging materials, ingredients or food contact surfaces. Post process retort cooling areas shall be adequately vented to allow for proper cooling and drying.

3.16 Food Safety – Storage, Transportation and Product Labeling

- 3.16.1 Procedures shall be in place to ensure raw materials, packaging, cleaners, sanitizers and ingredients are used in the correct inventory rotation order (first in-first out and/or first expiry-first out) and within the allocated shelf life (where applicable).
- 3.16.2 Product, ingredients, packaging, and other food contact items such as utensils, baskets, etc. shall be stored off floors, away from walls and covered.
- 3.16.3 Records for the effective monitoring of frozen storage areas and coolers where products are held shall be documented. Cold storage areas shall be maintained at -18°C or colder with no more than the occasional 3°C fluctuation above -18°C (except during defrost cycles).
- 3.16.4 Raw material and finished product in frozen storage shall be off the floor on pallets. There shall be aisles maintained between pallets and space between pallets and freezer walls to ensure adequate air flow.
- 3.16.5 All vehicles, including contracted out vehicles, used for the transportation of raw materials, ingredients, packaging, intermediate/semi processed product and finished product shall be suitable for the purpose, maintained in good repair, at the proper temperature (where applicable) and be cleaned to ensure contamination of the transported goods does not occur. Where temperature control has been applied, it shall be continuously monitored.
- 3.16.6 There shall be a written inspection plan for all inbound and outbound goods that include, at minimum, the items listed in 3.16.5. Such checks shall ensure the items and delivery containers meet specifications for safety and quality.

3.17 Food Safety – Cross-Contamination

- 3.17.1 The facility premises, equipment, procedures and flow shall be designed, constructed and maintained to prevent the risk of contamination or allergen cross contact to food and food contact surfaces and ingredients.
- 3.17.2 Raw product areas shall be physically separated from ready-to-eat product by a non-permeable barrier with self-closing doors to ensure contaminants are not transferred into sensitive areas.
- 3.17.3 All items used in ready-to-eat (RTE) areas (e.g. bins, crates, utensils, ingredients, ice, etc.) shall be kept separate from those used in raw areas. Such items shall be readily identifiable as for RTE areas through color coding, labeling, or other effective means. There shall be an effective validation procedure and sanitation procedure in place for items used in raw areas prior to use in RTE areas. Such procedures shall be monitored daily.

- 3.17.4 All employees working in RTE areas, or moving from raw to RTE, shall be required to change into RTE-wear free of contamination in a designated changing room.
- 3.17.5 Process water shall adequately drain away from high-risk areas (cooking and ready-to-eat) to lower-risk areas where raw product is maintained.
- 3.17.6 There shall be positive air flow and circulation from high risk areas to low risk areas. (To prevent cross-contamination in areas where raw product is in the proximity of ready-to-eat and cooked product).
- 3.17.7 Cleaning and sanitizing activities shall not occur where exposed product, packaging, ingredients or utensils are nearby to prevent cross-contamination.
- 3.17.8 All products in chilled and/or frozen storage shall be kept in protective sealed cartons. Ready-to-eat and raw products shall be kept separated from one another within the storage area. The facility shall maintain ambient refrigerated and/or freezer temperatures that inhibit bacterial growth, pathogen growth, and/or toxin development.
- 3.17.9 There shall be effective procedures in place to prevent cross-contamination and cross contact between allergen and non-allergen products, ingredients, utensils, and workers throughout receipt, storage, handling and use. Such procedures shall also be in place to prevent cross-contamination between ingredients or products with different allergens. These measures shall include physical separation, color-coding, labeling, time separation, or other effective means.

3.18 Food Safety – Product and Process Testing

- 3.18.1 There shall be a written program for the use of food additives or chemicals. Such as sulfites, color additives, phosphates, phosphate blends or other moisture retention agents. The facility shall also verify that these items are food grade and used in compliance with legal, customer, and manufacturer's requirements. Facilities shall document that the combination used do not create hazards.
- 3.18.2 The facility shall conduct microbiological and drug residue testing on finished product lots for the parameters and frequency as required by local law and country of export legislation, and for customer specifications. Both primary (first) processors and secondary (value added processors receiving from a primary plant) are required to comply with this testing requirement.

4.0 Verification Management

4.1 Product Release

- 4.1.1 The facility shall document and implement appropriate Product Release Procedures that identify processes and testing procedures that shall be performed. These Procedures shall identify the responsible person or persons authorized to release product and include food safety, quality and legal specifications that shall be verified as having been met prior to release.

4.2 Internal Audit

- 4.2.1 The facility shall have an internal audit system in place that requires self-assessment of the facility's performance against the full scope of the SPS Standard, including its Annexes.
- 4.2.2 The facility's internal auditors shall be trained and competent to conduct internal audits and the facility shall have a provision against internal auditors auditing their own departments or functions.

- 4.2.3 Records of the Internal Audits shall be maintained. Records shall reflect results of the internal audit, including conformity and non-conformity. Where non-conformities are found, records shall document corrective actions and time frame for completion for each.
- 4.2.4 The internal audit frequency within the facility and its departments shall be determined by risk assessment and shall be carried out annually at a minimum.

4.3 Instrument Calibration

Internal Calibration: Calibration performed within the facility by facility employees.

- 4.3.1 Process-monitoring instruments critical to food safety and legality shall be calibrated, or tested for accuracy, internally (i.e. by the facility in house). Such instruments would include thermometers, pH meters, salinity meters, metal detectors, or other items that monitor CCPs.
- 4.3.2 The facility shall maintain a documented calibration/accuracy check schedule that identifies all measuring and monitoring devices referred to in 4.3.1 and 4.3.5. The schedule shall identify each item, calibration date, scheduled frequency, recognized method or standard calibrated to, the source of the method or standard, and the party that performed the calibration.
- 4.3.3 The process monitoring instruments critical to food safety and legality referred to in 4.3.1 shall be calibrated or tested/checked for accuracy in-house at an adequate frequency and shall include an annual validation study of the functioning of the instruments under normal plant operating conditions.
- 4.3.4 Low Acid Canned Foods (LACFs) process controls (including heat distribution, heat penetration, post process validation, scheduled processes) shall be conducted on a pre-determined frequency by a recognized Processing Authority or other regulatory approved alternative method.

External Calibration (Calibration performed by third-party calibration specialists)

- 4.3.5 The facility shall ensure that all measuring and monitoring devices critical to food safety referred to in clause 4.3.1 are externally calibrated at least annually by a qualified third-party and are traceable to a recognized standard.

4.4 Sampling

- 4.4.1 The facility shall prepare a written sampling plan that details frequency and type of product testing. This sampling plan shall comply with the GAA testing requirements for antibiotics, microbial contaminants, and chemical additives described throughout the Standard and its Annexes. This sampling plan shall also incorporate any testing beyond GAA that are required by the local or country of export buyers or regulatory authorities.

4.5 Laboratory Testing

- 4.5.1 The facility shall prepare and implement a system to ensure that all product and ingredient testing and analysis critical to food safety are conducted to ISO 17025 or equivalent (i.e. the “General Requirements for the Competence of Testing and Calibration Laboratories”). This applies to both internal labs and external third-party labs.
- 4.5.2 Records of third-party laboratory testing, testing methods, and the accreditations or approvals they have, shall be maintained. (Refer to Annex 4).

5.0 Social Accountability Requirements

5.1 General Requirement

- 5.1.1 Facilities shall operate in compliance with this standard and all local, national, and international conventions, rules and regulations, whichever provides the highest protection to the worker. The facility shall have in place policies and procedures pertaining to, but not limited to: worker health and safety and compliance with requirements regarding wages, benefits, hours, hiring practices, minimum age, status of workers, and good employee relations that provide the highest protection to the workers.

5.2 Wages and Benefits

- 5.2.1 The facility shall ensure that workers are paid at least the legal minimum wage, or the wage rate established by an employment contract or collective bargaining agreement, whichever is higher. Regular wages and compensation shall cover the workers' basic expenses and allow for some discretionary funds for use by workers and their families.
- 5.2.2 The facility shall provide benefits that, at minimum, are required by local or national law (such as paid holidays, maternity leave, health insurance, paid sick time, etc., as applicable).
- 5.2.3 The facility shall compensate workers for overtime hours worked beyond the nationally mandated regular work week, at a premium rate, as required by local law.
- 5.2.4 The facility shall not make deductions from wages that are unauthorized or not provided for by national law. Facilities shall not make deductions from wages as part of a disciplinary process. Neither shall the facility make deductions that are not specified in the contract.
- 5.2.5 The facility shall not have inappropriate access to the worker's bank account. Payment of wages shall not be made to someone other than the worker or into an account not controlled by the worker.
- 5.2.6 The facility shall issue wages directly to workers and not withhold or delay or make irregular payments. All wage payments shall be documented. A record of wage payment (such as a pay slip) shall be provided to the worker and include itemized detail of all benefit afforded and deductions made.
- 5.2.7 The facility shall maintain all relevant documents that verify any contracted/subcontracted workers, whether through a labor employment service, recruiter, or otherwise, are paid in compliance with all local wage and overtime laws.
- 5.2.8 The facility shall not use contractors, subcontractors, temporary workers, homeworkers, apprentices or other non-full-time employment schemes to avoid the payment of benefits, social security, etc. required by local law under a regular employment relationship.
- 5.2.9 The facility shall maintain all relevant documents that verify piece workers (those paid a fixed "piece rate" for each unit produced or action performed regardless of time) are paid in compliance with local law, including equivalence to or exceeding minimum requirements regarding wages, overtime and holiday pay.

5.3 Working Hours

- 5.3.1 The facility shall set working hours that comply with local or national laws, contractual agreements where applicable, or industry standards in the country, whichever affords greater welfare to the workers. However, in no case shall the regular work week (excluding overtime) exceed 48 hours.
- 5.3.2 Overtime shall not exceed 12 hours per week except as permitted by national law in a voluntary contractual agreement.

- 5.3.3 The facility shall not terminate an employee's contract for refusal to work overtime or deploy any other detriment for noncompliance.
- 5.3.4 Facilities shall comply, at a minimum, with national laws regarding meal and rest breaks during work shifts. Facilities shall respect all workers right to a rest day after six consecutive days worked.
- 5.3.5 Facilities shall maintain records that verify compliance with working hour laws and provisions, as stated in 5.3.1 – 5.3.4 above, for all workers regardless of their status (piece-rate workers, contractors/subcontractors, hourly, salary, temporary, and so on).

5.4 Forced, Bonded, Indentured, Trafficked and Prison Labor

- 5.4.1 All work, including overtime, shall be voluntary, and shall not be under threat of any penalty or sanctions.
- 5.4.2 The facility shall not engage in any form of forced or indentured labor. This includes human trafficking, the confiscation or holding of original identity papers and other valuable possessions, hampering or preventing the renewal of travel or identification documents, and other means of coercion intended to force anyone to work. This also includes prison labor when not used in compliance with ILO Forced Labor Convention 29.
- 5.4.3 Bonded labor is prohibited. The facility shall not require the payment of deposits, bonds or other financial or collateral guarantees that may result in debt bondage. This includes recruitment fees, fines, and deductions from wages, and withholding of pay that are not part of a legal contractual agreement with the employee.
- 5.4.4 Workers shall have the right to leave the premises after their work shift. Workers shall also have the right to terminate their employment after reasonable notice. Facility shall not otherwise unreasonably restrict workers' freedom of movement.
- 5.4.5 Information regarding hotlines, competent authorities, and other resources for victims of labor rights abuse must be on display to workers in the facility.

5.5 Child Labor and Young Workers

- 5.5.1 The facility shall not engage in or support the use of child labor. The facility shall comply with local child labor laws regarding minimum working age, or the age of compulsory education, or, the ILO Minimum Age Convention 138, whichever is higher. While ILO Minimum Age Convention 138 states the minimum age shall be 15, local law of minimum age of 14 may apply if it is in accordance with developing nation's country exceptions under this convention. Records shall be collected, verified and retained to verify age requirements are met.
- 5.5.2 The employment of young workers (above the minimum age but under 18 years old) shall be in compliance with local laws, including required access to compulsory education.
- 5.5.3 Young workers shall not be subjected to conditions which compromise their health, safety, or moral integrity, or which harms their physical, mental, spiritual, moral or social development. This includes restrictions on working hours and prohibiting night work and hazardous work.
- 5.5.4 The facility shall have in place procedures for support to anyone identified as a child laborer in the facility. Depending on the age of the child, support must include at a minimum removal and reintegration into education (for children below the minimum age and/or children who have not completed basic education and/or changing job functions for young workers above the minimum age to non-hazardous tasks).

5.6 Hiring and Terms of Employment

- 5.6.1 Workers shall have a legal right to work in the country they are working in. Work performed and terms of employment shall be in compliance with local law or international labor standards, whichever is stricter. Records shall be collected, verified and retained to document right to work documents.
- 5.6.2 The facility shall provide to all workers, prior to hire and during employment, with written and understandable information regarding the terms and conditions of employment, worker's rights, benefits, compensation, expected working hours, details of wages for each pay period each time they are paid, and facility policies regarding disciplinary actions, grievance procedures, any authorized deductions from pay, physical work, environment and housing, and similar. This information must be provided in the prevalent language of a majority of employees. This requirement applies to all workers regardless of status, including but not limited to: hourly, salary, piece rate, temporary and seasonal workers.
- 5.6.3 Where contracted/subcontracted or temporary workers are hired through a labor or employment service, the facility shall ensure that the labor or employment service they are using provides the above information prior to and during hire, in appropriate languages, to ensure workers are aware of their rights and conditions of employment as described above.
- 5.6.4 All labor, recruiting, or employment services used by the facility must be licensed to operate by the local or national government as a labor provider. Workers shall not be subject to recruitment practices that employ threats, penalties, coercions, physical force, or fraud.
- 5.6.5 The facility shall document the agencies used to recruit, hire, and/or employ workers, in addition to any known fees paid by or debts accrued by workers in order to secure employment. Starting January 1, 2022, the Seafood Processing Standard shall apply in full the *Employer Pays Principle*. GAA will provide further clarifications for the requirements of this principle in advance of its implementation.

5.7 Discrimination, Discipline, Abuse and Harassment

- 5.7.1 The facility shall provide for equal opportunity with respect to recruitment, hiring, terms of employment, compensation, access to training, promotion, termination or retirement.
- 5.7.2 The facility shall not engage in or permit discrimination in all aspects of employment, including but not limited to recruitment, hiring, compensation, terms of employment, discipline, access to training, promotion, termination, or retirement on the basis of race, color, gender, national origin/ heritage, religion, age, nationality, social or ethnic origin, maternity, sexual orientation, political opinion, disability or any other status. Terms and conditions of employment shall be based upon the ability to do the job, not on personal characteristics or beliefs.
- 5.7.3 The facility shall treat workers with dignity and respect and not engage in or permit physical, verbal or sexual abuse, bullying or harassment.
- 5.7.4 The facility shall have a written disciplinary procedure made available in the prevalent language of the majority of workers. Records shall be maintained of all disciplinary actions.
- 5.7.5 The facility shall not terminate employees for pregnancy, subject workers to pregnancy or virginity testing, force the use of contraception, or reduce wages after maternity leave.
- 5.7.6 The facility must have in place an established complaints and remediation system to handle cases and allegations of sexual abuse/harassment, bullying or discriminatory practices. This must, at a minimum, include a confidential reporting mechanism,

information on any hotlines or other outside support services available and the possibility of calling in independent assessment/arbitration.

5.8 Freedom of Association and Collective Bargaining

- 5.8.1 Facilities shall respect the rights of workers to associate, organize, and bargain collectively (or refrain from doing so) without the need of prior authorization from management. Facilities shall not interfere with, restrict, or prevent such activities and shall not discriminate against or retaliate against workers exercising their right to representation in accordance with international labor standards.
- 5.8.2 Where the right to freedom of association and collective bargaining is prohibited or restricted under local law, the facility shall not prevent alternative means to facilitate worker representation and negotiation. (For example, the election of one or more employees by the workers to represent them to management).
- 5.8.3 The facility shall grant worker representatives access to the workplace in order to carry out their representative functions.
- 5.8.4 There shall be a written worker grievance process, made available to all workers, that allows for the anonymous reporting of grievances to management without fear of retaliation.

6.0 Employee Health and Safety (EHS)

6.1 Employee Facilities and Housing

- 6.1.1 The facility shall provide safe, healthy and clean conditions in all designated work, rest, dining, and, where applicable, housing areas, and shall establish and follow a clear set of procedures that ensures occupational health and safety. This includes providing access to potable water, clean toilet facilities, and, where applicable, sanitary food preparation and storage areas.
- 6.1.2 If provided or mandated by the facility or employment agency/labor broker, employee housing shall meet local and national laws and standards (e.g., safe, water-tight structures, adequate space, heating/ventilation/cooling, pest control, sink, shower and toilet facilities).
- 6.1.3 The facility shall have a sufficient number of toilets and sinks in compliance with local and national laws. These shall be readily accessible to employees and kept in good repair.
- 6.1.4 The facility shall provide a safe and hygienic place for workers to change into appropriate work attire and to store personal belongings that is secure and accessible to workers without delay or payment to access.
- 6.1.5 Where applicable the facility must provide meals which are wholesome and commensurate with local eating customs.

6.2 Worker Health and Safety

- 6.2.1 The facility shall appoint a senior management person responsible for ensuring worker health and safety.
- 6.2.2 The facility shall identify, prevent, eliminate or minimize any workplace health and safety hazards. This includes a requirement for documenting incidents, and investigations of accidents and their cause and correction.
- 6.2.3 The facility shall ensure proper measures for fire protection and prevention in all work, rest, dining, and where applicable, housing areas. This includes but is not limited to: adequate numbers of functioning fire extinguishers as per legal requirement; emergency

exits and evacuation routes that are clearly marked, properly lit and kept clear and unlocked while employees are present; proper training and enforcement for handling of flammable liquids and chemicals; and procedures to prevent fires during such activities as welding.

- 6.2.4 Facilities shall ensure that equipment and machinery are safe through, but not limited to: properly functioning shields or guards; warning signs/pictures; emergency shut-off switches; and implementation of lock-out/tag-out procedures to prevent start-up during maintenance.
- 6.2.5 Facilities shall ensure the strength, stability and safety of buildings and equipment in work, eating and, where applicable, housing areas. This includes ensuring proper electrical safety through proper wiring, grounding of cables, and coverage of circuit boxes.
- 6.2.6 Emergency evacuation drills (in case of fire, chemical leak or similar) shall be conducted, at a minimum, annually, to include all shifts and floors, and conducted jointly with other occupants in the building. Drills should be conducted similarly in housing facilities. The frequency of fire and evacuation drills shall be documented and verified.
- 6.2.7 An emergency response plan shall be prepared for serious illnesses or accidents or other incidents.
- 6.2.8 Select workers shall be trained in the details of the emergency response plans and in first aid (to include electrical shock, profuse bleeding, drowning and other possible medical emergencies). A list of the trained workers shall be kept.
- 6.2.9 At least one of the workers described in 6.2.8 shall be present at the facility at all times during production.

6.3 Personal Protective Equipment (PPE) and Clothing

- 6.3.1 Safe, appropriate and hygienic protective gear shall be provided, free of charge, to workers commensurate with work activity.
- 6.3.2 Appropriate PPE shall be given to workers based on risk assessment considering the work operations within the facility.
- 6.3.3 The facility shall list, control the issue of, and ensure the proper use of protective equipment and clothing provided to employees, contractors, and visitors (such as smocks, eye protection, gloves, insulated wear for refrigerated areas, boots for wet areas, etc.)

6.4 Medical Care

- 6.4.1 The facility shall provide adequate medical care for employees, including access to or communication with medical authorities in case of emergencies or accidents.
- 6.4.2 Facilities shall record the basic medical care provided by their facility.
- 6.4.3 First aid kits shall be readily available to employees close to work and rest areas. First aid kits shall be sealed to prevent contamination from the working environment.
- 6.4.4 The facility shall maintain a list of first aid items kept on hand and, where appropriate, their expiration date.

6.5 Employee Training

- 6.5.1 The facility shall have a documented training program for workers and maintenance personnel that operate or work on machinery and/or other dangerous equipment. Such training shall include but is not limited to boiler operators, welders, forklift drivers and those that operate or work on, or clean cutting, peeling, sorting and other potentially

dangerous machinery. Where local law requires workers to be licensed to operate or maintain such items, proof of licensing shall be maintained.

- 6.5.2 The facility shall have a training program to ensure workers that handle or are exposed to potentially dangerous chemicals, fuels, compounds, or other toxic substances are properly trained in their safe use. (See also 7.2.4).
- 6.5.3 The facility shall maintain a training program that orients new employees in general health, safety, product quality and the prevention of product contamination. The facility shall also provide refresher training to all employees on these subjects at least annually.
- 6.5.4 Training programs shall include specific requirements that verify the effectiveness of the training and that training programs are being effectively transferred to the workplace. The results of such assessments must be documented and available at least for those tasks which have an impact to the product safety, quality, legality, and human health and safety.
- 6.5.5 The facility shall maintain a training program for all employees related to fire safety and electrical safety, including use and disposal of dangerous materials.
- 6.5.6 The facility shall have an effective training program for all personnel on the personal hygiene standard and program and records of training shall be maintained.
- 6.5.7 All Employees shall be trained in the facility's sanitation SSOPs. Record of such training shall be maintained in accordance with the facility's record retention policy.
- 6.5.8 Records that verify proper training for all elements described above shall be maintained.

7.0 Environmental and Waste Management

7.1 Storage and Disposal of Plant Supplies

- 7.1.1 Chemical products, fuels, lubricants and other non-food grade and/or toxic compounds shall be properly labeled.
- 7.1.2 Used chemical containers shall not be reused in production or to store potable water, raw material, ingredients, packaging or other edible substances.
- 7.1.3 Chemical products, fuel, lubricants and other non-food-grade and/or toxic substances shall be securely stored in locked containers in areas that are away from kitchens, employee rest areas, and food production, packing and storage areas.
- 7.1.4 All items listed in 7.1.3 shall be safely stored to prevent mixing or water contamination that would result in noxious gases, explosions or other worker or food safety hazards. The storage area shall be well-ventilated and water-tight.
- 7.1.5 Secured storage areas for the items listed in 7.1.3 shall be under the control of designated responsible personnel.
- 7.1.6 Fuel, oil and lubricant storage shall include secondary containment areas to contain possible spills. The containment shall be equal to or greater than 110% of the capacity of the containers present at the facility.
- 7.1.7 Fuel, lubricant and chemical storage and maintenance areas shall be marked with warning signs as appropriate (e.g. "authorized personnel only", "flammable", "no smoking", "danger").
- 7.1.8 Precautions shall be taken to prevent spills, fire and explosion. Equipment and materials for managing and cleaning up spills shall be readily available. Employees working in such areas shall be trained in proper clean up procedures and in personal protection.

7.2 Environment – Waste Management

- 7.2.1 Sewage from the facility shall be adequately controlled to avoid contamination of the environment, food production areas, employee rest and housing areas, and water supply. It shall be properly treated through a municipal or plant sewer system.
- 7.2.2 Solid waste, waste water in plant production areas and on the plant grounds shall be properly stored and disposed of according to local laws and regulations. (This includes processing by-products such as heads, shells, bones, viscera, etc., and used packing materials). Such waste shall be disposed of to avoid negative impacts on the community and according to national environmental standards.
- 7.2.3 Used chemical and fuel containers, waste oil, lubricants, and expired chemicals and ingredients shall be disposed of in accordance with manufacturer's instructions and local government environmental regulations. The facility shall maintain copies of relevant and up-to-date regulations.
- 7.2.4 Facility personnel responsible for storage, transport and disposal of the items listed in 7.2.2 and 7.2.3 shall be appropriately trained to prevent personnel and food safety hazards as well as potential environmental contamination.
- 7.2.5 Where the local government requires a license or permit for the waste storage and disposal activities described in 7.2.2 and 7.2.3, the facility shall have a current copy of the plant's or their service provider's permit or license.

8.0 Animal Welfare – For Farm-Raised Species

8.1 Transport

- 8.1.1 Animals shall be transported to processing plants or other markets in a manner that assures a high level of animal welfare and minimizes distress.
- 8.1.2 If fish are hauled live to a processing plant, transport must be implemented without undue delay, and the time and stocking density controlled to provide optimum survival and product quality. These shall include, where necessary, adequate clean water, dissolved oxygen levels and temperature control.
- 8.1.3 Adequate dissolved oxygen levels shall be maintained. Transport density shall be determined by local conditions, these transport provisions shall apply equally to all suppliers, plant employees and subcontractors.

8.2 Holding Facilities

- 8.2.1 If animals are held live at processing plants prior to slaughter holding conditions shall be operated to assure adequate animal welfare. These shall include, where necessary, adequate clean water, dissolved oxygen levels and temperature control.

8.3 Slaughter

- 8.3.1 If animals are slaughtered at the processing facility, before slaughter, they shall be quickly rendered unconscious by humane means.

9.0 Traceability Management

9.1 Product Identity Preservation

- 9.1.1 Facilities that source raw material from both wild-caught and farm-raised sources shall properly identify, segregate and label products from different wild-caught and/or aquaculture sources and shall indicate any relevant certifications.
- 9.1.2 Proper identification shall be maintained for each lot, for each wild-caught and farm-raised source, on all documents and at each step of the process flow from raw material receiving, handling, processing, packaging, storage and dispatch. Records shall be maintained to ensure product identity and demonstrate that products from wild-caught and aquaculture sources and those from certified and non-certified sources are not mixed.
- 9.1.3 For facilities that produce both wild-caught and farm-raised species, procedures shall ensure that wild-caught certified and farm-raised certified products were not compromised through mixing or substitution with non-certified wild caught product or non-certified farm-raised products, or through mixing of product of different BAP star categories.
- 9.1.4 The procedures and records shall clearly show controls and traceability at ALL steps: chain of custody evidence from the outsourced entity (country of origin, for example), on the way to the outsourced entity, during handling, production, labeling or storage at the outsourced entity, and during transport away from the outsourced entity.

9.2 Traceability System

- 9.2.1 The facility shall develop, maintain and document appropriate traceability procedures and systems to include identification of batches of raw material, ingredients, in-process products, rework, outsourced processing, packaging, additives, and final product throughout the production process and any out-sourced product, ingredient or service.
- 9.2.2 The facility shall operate a traceability record-keeping process that provides timely, organized, accurate entries, performed and overseen by a designated trained person or traceability team responsible for collecting data, ensuring it is complete and accurate, and that traceability requirements are met.
- 9.2.3 Where a facility's traceability system consists of paper records, separate documents, forms, notebooks and/or files, this information shall be transferred to a computer database or spreadsheet to allow for transmission and verification of electronic data.
- 9.2.4 Where a facility's traceability system uses an online system or computer database, the facility shall keep copies of the documents or records that were used to transfer the data to the electronic system in order to allow verification of the information in the electronic system.

9.3 Traceability Elements

- 9.3.1 Wild-Caught Raw Material - The facility shall keep an up-to-date list of all wild-caught raw material suppliers, including the quantity supplied by each. The information shall also include:
- Supplier name and address
 - Common or commercial name and species name
 - Date of deliveries and lot numbers
 - Input tonnage and total net weight produced for mass balance calculation
- 9.3.2 Farm-Raised Raw Material– Facilities shall maintain documented farm data for all farm deliveries received from all BAP certified and non-certified farm suppliers to include the below information, as applicable:
- Farm supplier name
 - BAP farm certification number

- Production method (pond, cages, reservoir, etc.)
- Identification of production unit
- Sources of post larvae/stocking material
- Date of deliveries and lot numbers (one pond or culture unit on a single day)
- Unit of measure and total net weight for mass balance
- Movement document number (if relevant)
- Feed use (type and lot numbers)
- Reports of chemical treatments
- Testing data for the presence of microbes, antibiotics and chemicals in product

9.3.3 Ingredients/Packaging Materials – Facilities shall maintain complete data for all materials used in the product (including packaging, ingredients, chemical additives) from approved suppliers to include the below information, as applicable:

- Supplier name and address
- Facility invoice number and/or purchase order number
- Receiving date, quantity and lot number
- Full description of the item (ex: 3 mm poly film, sodium tripolyphosphate, batter, breadding)
- All label information including ingredients in, for example, the batter or breadding where applicable
- Lot number assigned by the facility when receiving in (if different from receiving lot number)
- Storage location

9.3.4 Finished Product – Facilities shall have a system in place that ensures up-to-date, and easily accessible, data of all wild-caught and farm-raised raw material suppliers. The facility shall maintain documented records and quantities for all finished product production lots to include the below information, as applicable:

- Facility certification number
- Supplier name and address including country
- Species of fish, both scientific name and common or commercial name
- Product form at the time of landing including quantity and weight
- Date harvested/production date (process date or date code)
- FAO statistical area of harvest
- Country of first landing
- Country of origin
- Date landed
- Name of entity to which the fish was first landed or delivered including: name, telephone, and email address of contact person
- Name of the flag of the harvesting vessel
- Vessel permit or license number
- Unique vessel identifier (such as vessel name or registration number)
- Specific type of fishing gear used for harvesting
- Date of deliveries and lot numbers
- Input tonnage and total net weight produced for mass balance calculation
- Evidence of chain of custody from harvest to export to USA, where applicable
- Finished product forms (i.e. raw fresh, raw frozen, raw RTE, cooked, breaded, etc.)

- Line number and/or shift, if applicable
- Size grade
- Accurate labeling: for the above and all other required information – ingredients, handling instructions, facility address or registration number where applicable, amount, source, and other full identification information for raw material used (shrimp, tilapia, etc., delivered from what supplier and when)
- Amount and full identification information (see receiving) for any ingredients used (breeding, marinades, batter, spices, etc.) for each lot of production
- Amount and full identification for any chemicals used (phosphates, sulphites) for each lot of product
- Amount and full identification for all packaging used for each lot of production

9.4 Labeling Controls

- 9.4.1 Products shall be packed in bags, boxes or master cartons, britestack pallets (i.e. canned) that are properly labeled with all information, including allergens, as required by local legislation and legislation of the country of destination.
- 9.4.2 Product labels shall also include all necessary information to ensure safe handling, storage, display, preparation and use of the product along the supply chain or by the consumer.

9.5 Product Destinations

- 9.5.1 The facility shall keep an up-to-date list of all customer names and locations where they ship SPS-certified and wild-caught certified product.
- 9.5.2 The facility shall maintain documented records for all production lots that records the below information, as applicable, for each BAP star category (1, 2, 3, and 4-star) and for wild-caught species the facility is eligible to produce:
- Lot number
 - Storage location
 - Shipping – company, method, date
 - Unique shipping identifiers – container or seal number, bill of lading
 - Receiving customer information – name, address, invoice or order number
 - Breakdown of all species, products, quantities, weight, sizes and lot numbers included in the shipment

9.6 Mass Balance

- 9.6.1 The facility shall demonstrate that the traceability system is effective and that product identity preservation has been maintained through conducting and documenting mass balance per 9.6.2, below.
- 9.6.2 The facility shall document the total quantity of incoming raw material for each species and the total quantity of finished product produced per species and product form. The facility shall conduct a mass balance on this data based on the expected percentage processing yield by species and product form. The quantities and mass balance results shall be provided to the auditor for verification.

Results from the mass balance calculations shall clearly show that the quantity of inputs versus the outputs for each test are appropriate. Calculations shall also reflect what the expected recovery/yield percentage for each final product form is and how they were derived. (Annex 1, Glossary, for definition of Mass Balance)

ANNEX 1 – Glossary

Accreditation

Procedure by which an authoritative body gives formal recognition of the competence of a Certification Body to provide certification services, against an international standard.

Accreditation Body

Agency having jurisdiction to formally recognize the competence of a Certification Body to provide certification services.

Accuracy Checks

Checking if an instrument is working properly by comparing it to a known-accurate item, typically against a single point of reference (such as the boiling point of water). If the thermometer cannot be calibrated/adjusted by the facility, then it is not “calibration” but an accuracy check. Where an inaccurate item cannot be adjusted it is NOT to be used. See “calibration” below as well as “internal calibration/accuracy checks” and “external calibration/accuracy checks”.

Allergen

Food causing an adverse reaction that is mediated by an immunological response. Different countries have different recognized allergens. Facilities and auditors must ensure they are aware of the recognized allergens in the local country and countries that product is exported to ensure they are properly addressed.

Assessment

Examination of production facilities, to verify that they conform to requirements.

Audit

Systematic and functionally independent examination to determine whether activities and related results comply with a conforming scheme, whereby all the elements of this scheme should be covered by reviewing the suppliers’ manual and related procedures, together with an assessment of the production facilities.

Auditor

Person qualified to carry out audits for or on behalf of a Certification Body.

BAP Star Category Definitions and Key Rules

Product cannot be claimed as 2, 3 or 4-star unless the rules in the standard and the rules stated here are strictly followed.

- Use of the BAP logo, or making any BAP claims about certified products, requires registration with BAP. The logo and any claims associated with BAP are registered trademarks of the GAA/BAP.
- Product cannot be called 2, 3 or 4-star unless each facility is linked in the supply chain and registered as such with BAP. Linked certified facilities appear on the BAP website with the associated BAP processing plant. The representation of star status on the BAP website only indicates the highest star status for which the processing plant is capable. The star status shown on the website may not represent the entire production of that facility. It is possible for facilities to establish 4-star capacity by linking with a single certified farm that purchases feed from a BAP certified feed mill and stocking material from a BAP hatchery.

Multi-star Claims:

- 1 Star = Product produced by a BAP Certified Plant
- 2 Star = Product produced by a BAP Certified Plant + BAP Certified Farm(s) only
- 3 Star = Product produced by a BAP Certified Plant + BAP Certified Farm(s) only + BAP Certified Hatchery or Feed Mill only
- 4 Star = Product produced by a BAP Certified Plant + BAP Certified Farm(s) only + BAP Certified Hatchery only + BAP Certified Feed Mill only

Example of 2-Star Claim:

Product can only be claimed as BAP 2-star if it is produced in a BAP-certified plant and with farmed product produced by a BAP-certified farm.

- If for example there are 5 farms supplying the BAP-certified plant, but only 1 of them is BAP certified, ONLY the product from that 1 BAP certified farm can be claimed, represented and sold as BAP 2-star. The product from the other farms shall be kept separate and cannot be claimed in any way as BAP 2 star (whether verbally, on documents, or using the BAP logo).

The same principal applies for 3 and 4-star product claims.

Calibration

As with “Accuracy Checks”, checking an instrument by comparing it to a known-accurate item. However, in this case the check would be against multiple points of comparison across the range of the instrument’s operation. And, the instrument can then be adjusted back to accuracy where it is out of calibration.

Certification

Procedure by which Accredited Certification Bodies, based on an audit, provide written or equivalent assurance that food safety management systems and their implementation conform to requirements.

Certification Body

Provider of certification services accredited to do so by an Accreditation Body.

Certification Standard

A normative document, established by consensus and approved by a recognized body that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in each context.

Certification System

A system that has its own rules of procedure and management for carrying out Certification.

Conflict of Interest

Where either a Certification Body or any Auditor are in a position of trust requiring them to exercise judgement on behalf of others and has interests or obligations (whether financial or otherwise) of the sort that might interfere with their exercise of judgement.

Evisceration

The complete sanitary removal of the contents of the stomach cavity and gill region of finfish and the complete sanitary removal of the contents of the mantle and head of cephalopods.

External Calibration/Accuracy Checks

Done by a third-party that is qualified to do the checks and certifies or attests to the instrument’s accuracy

Finished Product Lot

A processed batch of shrimp, fish, etc., produced by the plant during 1 day or 1 shift (day code).

Food Defense

Threats could include intentional contamination of food products, sabotage of the supply chain, and using food or drink items for terrorism or criminal purposes. Food Defense risks are not HACCP-related but rather facility security/sabotage related. Intended to prevent, for example:

- tampering or adulteration of product or the water supply by entry of unauthorized personnel
- entry by disgruntled or terminated employees
- uncontrolled access to storage areas
- access to and misuse of toxic compounds in the facility

Food Fraud

Food fraud includes incidents such as counterfeiting, adulteration, smuggling, stolen goods, dilution and mislabeling. All pose a risk as food being received may not be what it says it is and/or visibility could have been lost throughout the supply chain process.

HACCP Hazard Analysis and Critical Control Points (HACCP) is a systematic preventive approach to food safety and pharmaceutical safety that addresses physical, chemical, and biological hazards as a means of prevention rather than finished product inspection. HACCP is used in the food industry to identify potential food safety hazards, so that key actions, known as Critical Control Points (CCP's) can be taken to reduce or eliminate the risk of the hazards being realized.

Internal Calibration/Accuracy Checks

Done "internally" (i.e. by the facility) to regularly monitor if instruments are functioning properly. External Calibration/Accuracy checks are then also done for verification as needed but at least annually.

Mass Balance

The comparison of the weight of incoming raw material to finished products. Calculations are done using appropriate recovery rates for the finished product form, taking into account weight loss or gain during the process, as applicable. $\text{Finished Product} / \text{Raw Material} = \text{Percent Yield}$

Non-Conformity

Deviation of product or process from specified requirements, or the absence of, or failure to implement and maintain, one or more required management system elements, or a situation which would, on the basis of available objective evidence, raise significant doubt as to the conformity of what the supplier is supplying.

Primary Product Form and Sampling Instructions:

As referred to in the SPS Standard – "Primary Product Form" examples are:

- raw
- cooked
- raw ready-to-eat
- breaded
- smoked
- pickled
- dried
- canned
- salted
- marinated, etc.

Ready to Eat (RTE)

Items sold that require no cooking or limited re-heating. Such as cooked shrimp, smoked salmon, raw fish for sushi or sashimi.

Receiving Lot – Farm Suppliers

A batch of shrimp, fish, etc. delivered by a single farm, identified per culture unit (i.e. pond, cage, tank, etc.) to the SPS facility.

Receiving Lot – Wild-Caught Suppliers

A batch of wild-caught seafood delivered by a single supplier, identified per vessel, location/date of harvest.

Receiving Lot – Plant Suppliers

A processed batch of shrimp, fish, etc. produced by a plant that is supplying a SPS facility plant during 1 day or 1 shift (date code).

ANNEX 2 – Effluent Management Requirements

A2 1.0 Compliance Options

- A2 1.1 **No Discharge into Natural Water Bodies:** Facilities that do not discharge any effluents directly or indirectly into naturally occurring water bodies and comply with all other SPS requirements are eligible for GAA certification. Examples: effluents used for irrigation or other purpose preventing discharge to naturally occurring water bodies. Where this is confirmed the requirements to sample and test effluents in Section 2 (below) do not apply.
- A2 1.2 **Discharge to Municipal or Private Treatment Plants:** Facilities that have a valid contract with a municipality or industrial park facility that assumes the responsibility to treat and dispose of effluents in compliance with government, regional and local regulations are eligible for GAA certification if all other GAA requirements are met. Where this is confirmed the requirements to sample and test effluents in Section 2 (below) do not apply.
- A2 1.2.1 Plants shall not exceed local or national government permitted load levels when discharging effluents to a municipal or industrial treatment facility.
- A2 1.3 **On-Site Treatment:** Facility treats its own effluents and discharges under a valid government permit into a naturally occurring water body (sea, river, estuary, etc.) and all GAA effluent parameters are met as described in Section 2 (below).

A2 2.0 Effluent Records (Where A2 1.3 Applies)

- A2 2.1 For **New Applicants:** At least three consecutive months of effluent data, collected during operation, must be available for effluents that enter natural bodies of water (rivers, streams, canals, estuaries, etc.). Effluent samples shall be analyzed for all the variables listed in the Table in Section 2 (including 3 months' worth for the quarterly variables).
- A2 2.2 For **Recertification:** Test results ongoing as noted in the table below.
- A2 2.3 To minimize the chance of disease transmission from effluents discharged to natural waters, plants shall screen out solids and treat effluents by chlorination or another method of disinfection which will kill the disease organisms before release. (Once the effluents are properly treated, disinfectant residues shall be neutralized, removed, or allowed to dissipate prior to effluent discharge).
- A2 2.4 Records of effluent water quality concentrations entering natural bodies of water shall comply with government regulations, or the SPS criteria (See Table below), whichever is stricter.

**ANNEX 2 – Table I
Effluent Water Quality**

Variable (units)	Initial Value*	Interim Values (Applicable after 31 December 2020)	Final Values (Applicable after 31 December 2023)	Collection Frequency
pH (standard units)	6.0-9.5	6.0-9.25	6.0-9.0	Monthly
Total suspended solids (mg/L)	200 or less	150 or less	100 or less	Quarterly
Soluble phosphorus (mg/L)	10 or less	7.5 or less	5 or less	Monthly
Total ammonia nitrogen (mg/L)	20 or less	15 or less	10 or less	Monthly
5-day biochemical oxygen demand (mg/L)	500 or less	350 or less	200 or less	Quarterly
Oil and grease (mg/L)	30 or less	25 or less	20 or less	Quarterly

A2 2.4.1 * Limited Option for marine environments only:

- The requirement to meet the Interim Values tabulated above may be delayed until 31 December 2020, and the Final Values to 2023, for processing plants that can demonstrate that the water quality (as measured by the same set of variables) at the edge of the mixing zone (samples taken within a few meters downstream of the discharge pipe - closer or farther depending on the energy level of the receiving environment) and outside the mixing zone (samples taken upstream from the discharge pipe) does not differ. Sampling must be done on a quarterly basis.
- For facilities that cannot meet the parameters in the table above, an assimilative capacity study on the receiving waters by a qualified third-party updated annually would be an acceptable alternative. If the influent level(s) into the plant remain greater than the Interim or Final Values listed above for that parameter, the processing plant would be exempt for compliance to that parameter. However, the concentration must not increase (or decrease for dissolved oxygen) between the source water and effluent.

A2 2.5 Facilities must record and submit the average annual concentrations for each variable for effluents that entered natural bodies (“receiving waters”) of water from your facility during the last calendar year. This will include:

- pH (standard units)
- Total suspended solids (mg/L)
- Total ammonia nitrogen (mg/L)
- Soluble phosphorus (mg/L)
- 5-day biochemical oxygen demand (mg/L)
- Oil and grease (mg/L)

A2 2.5.1 The facility must record and provide to the auditor the annual average volume of effluent discharge in cubic meters/day. The auditor shall report this data to GAA for informational purposes only.

A2 2.6 Collection of Effluent Samples during the Audit and Third-Party Laboratory Testing

Instructions to Facilities and Auditors:

- The auditor shall supervise the collection of representative effluent samples during every GAA audit where Section 2 applies.
- Samples shall be taken by the facility, or the facility's designated third-party lab. The auditor is to supervise this process and verify that samples are taken from the correct locations and using accepted sample collection methods. Sampling may only be conducted during periods when processing and cleaning is occurring.
- Once the samples are collected, the auditor is to verify that they were properly marked with the sample number, date, time, facility name, sample location, and collection method (either grab or composite). Auditors must also ensure that samples are sealed with tamper-proof tape and sent to, or picked up by, the third-party testing laboratory prior to completion of each audit.
- This obviously means that addressing effluent sampling shall not wait until the end of the audit. Nor be done after hours or on weekends when third-party labs are closed.
- Samples are to be tested for all parameters as described in Annex 2. It is the facility's responsibility to ensure the third-party laboratory doing the testing is aware of and able to perform GAA required tests.
- Testing costs are the responsibility of the facility. Test results are to be forwarded for review, in a timely fashion, to the Certification Body responsible for conducting the audit.
- The third-party lab is to obtain the Certification Body's contact information and email address for directly forwarding the test results to them in a timely fashion. The facility shall give permission for this to the third-party lab.

- A2 2.6.1 Where Annex 2 applies – were samples collected properly by the facility or third-party lab, from the correct locations and using accepted sample collection methods, marked and sealed properly and sent to or picked up by the third-party lab during the audit? (Auditor to note in comments who collected the sample)
- A2 2.6.2 Where Annex 2 applies – the auditor shall describe the correct sample label details here for each sample: date, time, sampling location, and sample number.
- A2 2.6.3 The auditor shall also record how the sample was packaged, and the name of the third-party lab that picked it up, and where the sample was shipped. The auditor shall verify and record that samples were shipped immediately by the facility, the shipping method, and the name of the laboratory to which they were sent. (Informational purposes only).

ANNEX 3 – Additional Traceability Verification Requirements

This Annex applies to all applicant Seafood Processing Plants eligible to produce BAP 1, 2, 3 and/or 4-star products. All farmed products which are processed in a SPS-certified processing plant are a minimum of 1-star BAP certified. Facilities that demonstrate documented linkages to BAP-certified farms and which may have further linkages to BAP-certified feed mills and/or hatcheries may qualify for the BAP multi-star logo chain of custody. Annex 3 is not applicable to Seafood Processing Plants that process only wild-caught species.

BAP Star System and Star Status Verification

Product Identity Preservation, BAP Lot Identification, Logo Use or BAP Claims

See Annex 1: Glossary “BAP Star Category Definitions and Key Rules” regarding BAP 1, 2, 3 and 4-star claims. Products cannot be labeled, claimed or sold in any way as 2, 3 or 4-star unless all of the rules in the Glossary as well as Section 9 and Annex 4 are complied with.

General Information

A3 1.0 Labeling

A3 1.1 The facility shall have a documented label control procedure to ensure integrity BAP star category claims. The procedure shall include personnel authorized to approve, amend and release labels and its specifications and work instructions to control label use and their storage. The procedure shall also include the prevention of mislabeling of products of different BAP star categories for all applicable species.

A3 1.2 The label control procedure shall include a procedure for the proper labeling and downgrading of the star status of products in the event the facility mixes product of different BAP star categories. Where this occurs, records shall be maintained demonstrating which products of different BAP star categories were mixed, and that the star status of resultant product was properly downgraded.

Examples:

- If 3-star BAP products are mixed with 2-star BAP products, then the entire product lot must be labelled as 2-star BAP product. The 3-star BAP products will lose its 3-star status.
- Where 1 and 2-star products are mixed, or 1, 2 and 3-star products are mixed, the entire product lot shall be downgraded to 1 star).

A3 1.3 The facility shall properly identify and label products of different BAP star categories whether or not BAP logo is used on packaging. Proper identification shall be maintained for each lot, for each star category, on all documents and at each step of the process flow from raw material receiving, handling, processing, packaging, storage and dispatch. Records shall be maintained to ensure integrity of BAP product claims and also demonstrate product of different BAP star categories are not mixed.

A3 2.0 Lot Identification

The numbered points below contain information on how facilities should set up a traceability system in order to successfully complete the required traceability exercises in Annex 3, below.

- A3 2.1 The facility shall assign a unique code or lot number separately for products of each BAP star category. This unique code or lot number shall be assigned at receiving and carry forward through each step of production, packaging and storage in order to easily identify and trace every lot of BAP 1, 2, 3 and 4-star products from each other, and from non-BAP products.
- A3 2.2 Product shall not be claimed as BAP 2, 3 or 4-star unless the unique code or lot number stated in A3 2.1 appears on all production documents from receiving throughout to shipping. Or, where product is assigned a different code or number at some stage, the unique code or lot number referenced in A3 2.1 shall also be referenced in the production document(s) together with the new code. These documents shall also bear the BAP certification number of the farm(s), hatchery/nursery and/or feed mill the product was sourced from, and the quantity per lot for each BAP star category.
- A3 2.3 Finished product codes and/or lot numbers that appear on the master carton and inner packaging shall either match the unique codes referenced in A3 2.1, or, there shall be a reference back to those unique codes in finished product documents so that the packaging codes and the unique codes in A3 2.1 are tied to each other.
- A3 2.4 The codes and lot numbers referenced in A3 2.1 to A3 2.2 shall also be transferred to shipping documents that are provided directly to the purchaser/buyer. The facility shall provide to the auditor the document being used for this purpose and the auditor shall record this information on the audit report.
- A3 2.5 For each shipment, the documents referenced in A3 2.4 shall also record the breakdown of quantities for each BAP star category and its unique code or lot number.

Mass Balance for Verification of BAP Star Status Claims

The facility shall demonstrate that the traceability system is effective, and that product identity preservation has been maintained through conducting and documenting mass balance as described below.

- A3 2.6 The facility must record and provide to the auditor evidence of a documented relationship with all BAP facilities to which the facility is linked for purposes of star status claims, including the names of all supplying facilities, names of all receiving facilities, and the corresponding annual volume of BAP product exchanged between the named BAP facilities in metric tons/year.
- A3 2.7 Where the facility is eligible to produce BAP 2-star product(s), the facility shall keep an up-to-date list of all of the BAP-certified farms that are supplying them since the last BAP audit. This information shall also include the quantity by species actually supplied by each farm, the productive capacity of each farm, and the BAP facility certification number for each farm.
- A3 2.8 Where the facility is eligible to produce BAP 3 and/or 4-star, the facility shall keep an up-to-date list of the BAP certified farms that are supplying them since the last BAP audit.
- A3 2.9 In addition, facilities producing 3-star product shall require supplying farms to provide documentation verifying of their BAP 3-star eligible lots. Likewise, facilities producing 4-star product shall require supplying farms to provide documentation verifying of their BAP 4-star eligible lots.
- A3 2.10 The facility shall also conduct mass balance tests on a per lot basis for each star category per species and product form. Per lot mass balance verification data shall be provided to the auditor for verification.
- A3 2.11 Results from A3 2.10 and 9.6.2 shall clearly show that the quantity of inputs versus the outputs for each test are appropriate, and that no mixing of BAP-certified products with non-certified

products and no mixing of wild-caught with BAP eligible species occurred. (If the facility mixes product of different BAP star categories together in a lot, this situation shall be handled as described under A3 1.2). Calculations shall also reflect what the expected recovery/yield percentage for each final product form is and how they were derived. (See Appendix 1, Glossary, for definition of Mass Balance).

A3 2.12 The facility shall provide the auditor a summary of the quantities for each BAP-certified species, broken down into their respective Star Status categories and this data shall be included in the audit report.

Additional Auditor Guidance

Mass Balance Calculation:

- Make reference to Mass Balance definition in Annex 1, and provide example calculation formula, such as: $\% \text{ Process Yield} = \text{Quantity of Finished Product} / \text{Quantity of Raw Material}$.
- Mass Balance per Lot Code: Note that Auditor might make reference to examples generated during Facility Traceability Exercises and Presented in Annex 3.

A3 3.0 Traceability Exercises

As required in Section 9 – Traceability Management of the SPS standard, the traceability system at each facility shall include all relevant inputs and outputs. This includes not just the information about the farm source of raw material and date code and lot information for the plant, but also for packaging, ingredients, and the entities to which the product was shipped.

The minimum number of traceability exercises to be performed by the auditor during the SPS facility audit is defined in the tables below. The results of these exercises shall be documented and shall demonstrate compliance with the standard.

A3 3.1 The results of the trace-forward and trace back exercises shall be recorded for each star category the facility is authorized to produce. 100% accountability shall be achieved during the exercises.

A3 3.2 Once the lots are selected by the auditor for tracing, the results for all of them combined shall be achieved in no more than one half-day (6 hours).

A3 3.3 Mass balance shall also be recorded for each exercise. The auditor shall also record in the audit report what percent and tonnage of product the facility produced during the previous calendar year for each star category so as to verify the selection of lots and the number of exercises were appropriate as described in the above table instructions. Final results for all exercises shall be in line with expectations.

ANNEX 3 – Table I
Minimum Traceability Exercises to be Performed for BAP Star Status

BAP Star Category	Total No. of Trace Backs	Total No. of Trace Forwards	Instructions
1 Star	1	1	<ul style="list-style-type: none"> For new facilities not yet certified, or recertifying facilities that are only 1 Star approved.
2 Star	2	1	<ul style="list-style-type: none"> For facilities eligible to produce 2 Star, the trace backs must include the details of BAP-certified and non-certified farms, as specified in 9.3.2.
3 Star	3	2	<ul style="list-style-type: none"> For facilities eligible to produce 3 Star, the trace backs must include the details of BAP-certified farms and their suppliers of feed or stocking material.
4 Star	4	2	<ul style="list-style-type: none"> For facilities eligible to produce 4 Star, the trace backs must include the details of BAP-certified farms and their suppliers of BAP-certified feed and stocking material.
Multi-Star Facilities	<ul style="list-style-type: none"> All facilities must perform trace backs and trace forwards for the total number of traceability exercises listed for the highest star category registered with BAP. For a facility with multiple star-claims, at least one exercise shall be derived from a production lot of each star-status claimed, and an additional trace back must be done on the highest volume (MT) multi-star category. For 3 and 4 Star claims, no 1 Star exercises are required. 		

ANNEX 4 – Sampling and Testing Verification Requirement

Under the requirements of the current Standard, the auditor has a role during the annual audit, to arrange for the selection and collection of samples to be sent to a Third-party Laboratory for testing. Plants are responsible for all testing costs related to certification. GAA sampling requirements do not override legal sampling and testing obligations.

For aquaculture products, samples from different species are not to be mixed (i.e. composited), nor are samples of different Primary Product Forms to be mixed for microbiological testing. Exceptionally, for drug testing, laboratories may be allowed to mix samples from different Primary Product Forms if there are not enough samples of raw frozen forms available. **Compositing of samples is no longer to be done at the plant but must instead be done at the Third-party Laboratory. No compositing between aquaculture (farmed) products and wild-caught fishery products is allowed.**

A4 1.0 During the Audit – Collection of Product Samples and Review of Test Results by CB-assigned Auditor

During the annual audit of seafood processing plants, GAA auditors or sampling personnel authorized by GAA shall collect samples of finished product and forward them directly to an approved ISO-17025 laboratory for testing. Under normal circumstances, it is the CB-assigned auditor who must arrange and supervise the collection, labeling, and shipment to a qualified Third-party Laboratory, of samples as described in this section.

Auditor Requirements:

- A4 1.1 Auditors shall provide a narrative description of the process used to select samples, and any difficulties encountered in assembling the requisite number of samples.
- A4 1.2 Auditors must supply documentation associated with the samples collected, to include:
- A copy of the plant inventory sheet in use on the day samples are collected, against which the selection of samples was made (supply as an Excel or Word file, or as a legible scanned file or photo)
 - List of samples collected, facility and laboratory details (as an Excel file), detailing the following:
 - Facility name and GAA ID number
 - Third-party laboratory name and contact details
 - Sampling date and times
 - Species (scientific name)
 - Primary Product Form description (per sample)
 - Alphanumeric Sample Code assigned by auditor – as written on sample bags (per sample)
 - Production lot ID or date code (per sample)
 - Description of product, including product specifications such as size or count, supplier code, etc. (per sample)
 - Photos of each sample collected, showing the assigned alphanumeric code and any other tracking information visible on the bag (per sample).
 - A description of how the samples were packed and shipped shall be provided to GAA.

Once testing has been completed, the laboratory must forward an original copy of the analytical results directly to the CB and GAA, with a copy to the facility. Results must be documented in the certification records, and CB's must supply GAA with copies of the test results.

If any positive results are detected in a composited sample, laboratories will be required to utilize the retained portions of individual samples to determine which production lot(s) were the cause of the positive results. Facilities shall launch an investigation into the root cause of such contamination, and document effective corrective actions to prevent future recurrences. Positive test results will normally result in GAA assigning a more frequent level of "Plant Ongoing Monitoring", as is subsequently described in Section 3 of Annex 4.

Auditable clauses:

A4 1.4 The auditor shall confirm whether the tests carried out by the Third-party Laboratory were complete, that the correct parameters were tested, using testing methods acceptable to GAA, and using the correct levels of sensitivity (LOQ's, MRPL's), as specified in Annex 4 Tables II, III, or IV, as applicable.

A4 1.5 The auditor shall confirm whether the results from the tests on samples collected during the audit conform to the GAA limits stated in Annex 4 Tables II, III, or IV, as applicable.

A4 2.0 During the Audit – Collection of Product Samples and Review of Test Results by CB-assigned Auditor When a Third-Party Has Been Assigned to Collect Samples

Only in cases where GAA has specifically notified the facility and the CB in advance that a Third-party Laboratory or GAA-approved Sampler must be present during the audit, will the sampling process be carried out by Third-party personnel. This will normally only occur when a facility has had a confirmed report of contamination in a shipment of finished products, such as might occur under USFDA, USDA, CFIA, EU, or other such competent authorities' testing programs, or when GAA sampling has resulted in a positive test result. If such notification has not been given to the facility or to the CB, this Section (Annex 4 Section 2) will be N/A.

When this sampling approach has been invoked, GAA will arrange for a Third-party Laboratory accredited to ISO 17025 or equivalent, or for a GAA-approved Sampler, to be present during the audit for the collection and transport of samples.

The auditor shall review production records to determine the types of products in active inventory and the quantity of each (as described in Annex 4 Section 1 above). From this information the auditor shall designate which lots shall be sampled. The Third-party Laboratory or GAA-approved Sampler shall collect the samples from the lots the auditor designates. The auditor shall supervise the collection of product samples during the GAA audit. The documentation steps outlined in Annex 4 Section 1 above are to be followed.

The auditor shall provide the Third-party Laboratory or GAA-approved Sampler the Certification Body's contact information and email address for directly forwarding the test results to them in a timely fashion.

Once testing has been completed, the laboratory must forward an original copy of the analytical results directly to the CB and to GAA, with a copy to the facility. Results must be documented in the certification records, and the CB must supply GAA with copies of the test results.

Laboratories are required to partition incoming samples as needed for completing microbiological and drug testing as outlined in Annex 4, and **a portion of each individual sample must be retained for follow-up testing, in case any positive result is detected in a composited sample.** In case of positive findings in a composited sample, laboratories must utilize the retained individual sample portions

to determine which production lot(s) was the cause of the contamination. In cases of positive findings, facilities are required to launch an investigation into the root cause of the contamination, and document effective corrective actions to prevent future recurrences. Positive test results will normally result in GAA assigning an accelerated frequency of “Plant Ongoing Monitoring”, as is subsequently described in Section 3 of Annex 4 and Annex 4 Tables I and II and Annex 4 Figure I. Plants will be responsible to pay for any additional testing costs in case such supplemental testing is required due to positive results being obtained in a composited sample.

Auditable clauses (when Third-Party sampling has been invoked):

- A4 2.1 The auditor shall record the name and contact details for the Third-party Laboratory or Sampling company, and the name of the staff member that collected the samples.
- A4 2.2 The auditor shall confirm whether the tests carried out by the Third-party Laboratory were complete, that the correct parameters were tested, using testing methods acceptable to GAA, and using the correct levels of sensitivity (LOQ's, MRPL's), as specified in Annex 4 Tables II, III, or IV, as applicable.
- A4 2.3 The auditor shall confirm whether the results from the tests on samples collected during the audit conform to the GAA limits stated in Annex 4 Tables II, III, or IV, as applicable.

A4 3.0 Once Certified – Plant Ongoing Monitoring

As with the “During the Audit” sampling, only in cases where GAA has specifically notified the facility that a Third-party Laboratory or Sampler must be involved, will the sampling process be carried out by third-party personnel. This will normally only occur when a facility has had a confirmed incident of contamination in a shipment of finished products that tested positive for contamination, such as might occur under USFDA, USDA, CFIA, EU, or other such competent authorities' testing programs. If such GAA has not communicated in advance that a facility is to be following a more accelerated frequency of testing, the facility will themselves be responsible to collect samples for testing to be performed under this Section.

Facilities shall carry out Plant Ongoing Monitoring at the appropriate frequency as outlined in Annex 4 Table I. This is **Quarterly** for new facilities, and **Semi-annually** for facilities that have been in the GAA program for a long period without positive test results. Facilities that have had repeated incidences of positive test results will be at a **Monthly** frequency of testing. If additional positive test results occur for facilities that are on a **Monthly** frequency, they will be at risk of being **Suspended** from the GAA certification program (see the illustration of the “escalation” process in Annex 4 Figure I).

Note: GAA allows the “During the Audit” sampling and testing required under Section 2 of Annex 4 to be counted towards the required frequency of sampling in the “Plant Ongoing Monitoring” requirement. (This means for example that if a plant is at the lowest frequency of “Semi-Annual” sampling, they fulfill the Sampling requirement by conducting one set of sampling and testing done in the “Plant Ongoing Monitoring”, and the second set by the sampling and testing done in the “During the Audit” monitoring.)

Sampling done under this category is to be conducted in the same manner as has been outlined in Section 1 of Annex 4 above. Facilities are to communicate the periodic results from such testing to the CB that conducted their most recent annual audit, as well as directly to the GAA. Testing done for the sake of government sampling and testing programs can wholly or partially be counted towards meeting this “Ongoing Plant Monitoring” requirement, if such testing includes the same parameters as GAA, and has been conducted using sampling and testing procedures that are equivalent or stricter than what is specified by the GAA program.

Auditors shall verify that the facilities have been carrying out this “Plant Ongoing Monitoring” as required, and document the following points:

Auditable clauses when the facility is doing “Plant Ongoing Monitoring” themselves:

- A4 3.1 What is the frequency of “Plant Ongoing Monitoring” the facility is using at the time of the audit? Does the frequency of such testing conform to what is expected for the facility under the requirements of Annex 4 Table I?
- A4 3.2 The auditor shall confirm whether the tests carried out by the Third-party Laboratory were complete, that the correct parameters were tested, using testing methods acceptable to GAA, and using the correct levels of sensitivity (LOQ’s, MRPL’s), as specified in Annex 4 Tables II, III, or IV, as applicable.
- A4 3.3 The auditor shall confirm whether the results from the tests on samples collected during the audit conform to the GAA limits stated in Annex 4 Tables II, III, or IV, as applicable.
- A4 3.4 Were the results of “Plant Ongoing Monitoring” communicated to the CB and to the GAA as required?

Auditable clauses when “Plant Ongoing Monitoring” is being done by a Third-Party Sampler:

- A4 3.5 What is the frequency of “Plant Ongoing Monitoring” the facility is using at the time of the audit? Does the frequency of such testing conform to what is expected for the facility under the requirements of Annex 4 Table I?
- A4 3.6 Did the Facility arrange for a Third-party Laboratory accredited to ISO 17025 or equivalent, or a Sampling Company recognized by GAA to collect samples as required?
- A4 3.7 The auditor shall confirm whether the tests carried out by the Third-party Laboratory were complete, that the correct parameters were tested, using testing methods acceptable to GAA, and using the correct levels of sensitivity (LOQ’s, MRPL’s), as specified in Annex 4 Tables II, III, or IV, as applicable.
- A4 3.8 The auditor shall confirm whether the results from the tests on samples collected during the audit conform to the GAA limits stated in Annex 4 Tables II, III, or IV, as applicable.
- A4 3.9 Were the results of “Plant Ongoing Monitoring” communicated to the CB and to the GAA as required?

ANNEX 4 – Table I
Sampling and Testing Frequency – Note that Sampling and Testing for Aquaculture (Farmed) and Wild-Caught (Fisheries) Products are Separate Requirements.

Product Test Type	Required Tests	Number of Samples to be Tested	Compositing	Enhanced Sampling (Monthly)	Normal Sampling (Quarterly)	Reduced Sampling (Semi-Annually)
Aquaculture (farmed) products						
Microbiological Pathogens and Aquaculture Drugs* <i>*(Value Added/ Secondary re-processors buying from a primary processor are exempt from testing for aquaculture drugs if they have addressed the hazard in their hazard analysis by requiring controls at the primary processor. Refer to "Note" under 3.2.13)</i>	Types of tests, limits, and methods as described in the Annex 4 Tables II and III below	For each species, 1 sample each, from up to 12 DIFFERENT finished product lots chosen from among the primary product forms in active inventory. <i>(See Annex 1 Glossary for definitions of "Finished Product Lot" and "Primary Product Form and Sampling Instructions)</i>	Compositing of samples is NOT to be done at the plants by Samplers, but instead will be done by the 3 rd party laboratories. At the laboratory, samples from up to 12 different finished production lots will be combined into a maximum of 4 samples per composite.	Until 6 months of compliant results achieved. Then switch to Quarterly (Normal sampling). If any positive result, facility is subject to suspension	All new facilities start with Normal until 2 Quarters of compliant results have been achieved. Then switch to reduced sampling (Semi-Annually) If any positive result while at Quarterly level, switch to Monthly (Enhanced sampling)	As long as tests remain compliant. If any positive result, switch from Semi-Annual to Quarterly (Normal sampling)

Product Test Type	Required Tests	Number of Samples to be Tested	Compositing	Enhanced Sampling (Monthly)	Normal Sampling (Quarterly)	Reduced Sampling (Semi-Annually)
Wild-caught seafood products						
Microbiological Pathogens, Environmental Contaminants, and Products of Decomposition* <i>*(Value Added/ Secondary re-processors buying from a primary processor are exempt from testing for Environmental Contaminants and Products of Decomposition if they have addressed the hazard in their hazard analysis by requiring controls at the primary processor. Refer to "Note" under 3.2.13)</i>	Types of tests, limits, and methods as described in the Annex 4 Tables II and IV below	1 sample each, from up to 12 DIFFERENT finished product lots chosen from among the primary product forms in active inventory. <i>(See Annex 1 Glossary for definitions of "Finished Product Lot" and "Primary Product Form and Sampling Instructions)</i>	Compositing of samples is NOT to be done at the plants by Samplers, but instead will be done by the 3 rd party laboratories. At the laboratory, samples from up to 12 different finished production lots will be combined into a maximum of 4 samples per composite.	Until 6 months of compliant results achieved. Then switch to Quarterly (Normal sampling). If any positive result, facility is subject to suspension	All new facilities start with Normal until 2 Quarters of compliant results have been achieved. Then switch to reduced sampling (Semi-Annually) If any positive result while at Quarterly level, switch to Monthly (Enhanced sampling)	As long as tests remain compliant. If any positive result, switch from Semi-Annual to Quarterly (Normal sampling)

ANNEX 4 – Figure 1

Finished Product Sampling and Testing flow chart (described in Annex 4 Table I).



ANNEX 4 – Table II

Required Finished Product Testing – Microbiological Criteria Applicable to both aquaculture (farmed) and wild-caught products

Acceptable Tests*	Microbiological Criteria	Species / Form	Limits	Reference (see ref. listings below)
BAM, AOAC	Escherichia coli	Finfish and crustaceans (<i>all forms</i>), and <i>processed/cooked</i> molluscan shellfish	Out of 5 subsamples, reject if 3 or more subsamples exceed 4 per gram; 1 or more subsamples exceed 40 bacteria per gram (MPN) ^(a)	1, 2
	Escherichia coli	<i>Shell stock, fresh-shucked thawed and frozen</i> shellfish, shellfish <i>frozen on half shell</i>	Out of 5 subsamples, reject if 1 or more subsamples exceed 330 bacteria per 100g, or if 2 or more subsamples exceed 230 bacteria /100g (MPN) ^(b)	1, 2, 3
	Staphylococcus aureus	Finfish/crustaceans (<i>all forms</i>)	Using only 1 of 2 possible tests methods: Reject if positive for either Staphylococcal enterotoxin ^(c) , or a level equal to or greater than 1×10^4 bacteria per g (MPN) ^(d)	3
	Salmonella sp.	Finfish/crustaceans/molluscan shellfish (<i>all forms</i>)	Reject if presence is detected in 25 grams	2, 3, 4
	Listeria monocytogenes	Finfish/crustaceans/molluscan shellfish (<i>cooked and raw, ready to eat products only</i>)	Reject if presence is detected in 25 grams	3, 4

^(a) 3-tube MPN analysis acceptable for finfish, crustaceans, processed molluscan shellfish (BAM-4)

^(b) 5-tube MPN analysis for raw and frozen forms of non-processed shellfish described (BAM-4)

^(c) US FDA. 2017. Bacteriological Analytical Manual, Chapter 13B Staphylococcal Enterotoxins Detection Methods

^(d) US FDA. 2016. Bacteriological Analytical Manual, Chapter 12 Staphylococcus aureus or; AOAC International. 1995. Official Methods of Analysis, 16th ed., sec. 987.09

* Other published methods of a sensitivity equal to or greater than the stated method may also be used, provided such methods are published, and approved by the USFDA, USDA, EU or CFIA, and verifiable documented evidence of their approval are provided.

ANNEX 4 – Table III

Required Finished Product Testing for Aquaculture (Farmed) Products

Acceptable Tests*	Chemical Residue - Aquaculture Drug	Method LOQ/MRPL (µg/kg)	Limits	Reference	
HPLC/MS	Chloramphenicol	0.3	no residue permitted	3, 5	
	<u>Nitrofurans Metabolites</u>	1.0	no residue permitted	3, 5	
	Furazolidone				
	Furaltadone				
	Nitrofurantoin				
	Nitrofurazone				
	<u>Fluoroquinolones</u>	1.0	no residue permitted	3, 6	
	Sarafloxacin				
	Ciprofloxacin				
	Enrofloxacin				
	<u>Triphenylmethane Dyes</u>	0.5	no residue permitted	6	
	Sum of Malachite Green & Leuco-malachite Green				
	Sum of Gentian Violet & Leucogentian violet				
	<u>Quinolones</u>	5.0	no residue permitted	6, 7	
	Flumequine				
Oxolinic acid	5.0				
Sulfonamide (parent drug)	5.0	no residue permitted in unapproved species ^(a)	7		
Oxytetracycline	5.0	no residue permitted in unapproved species ^(b)	7, 8		
Tetracycline	5.0	no residue permitted in unapproved species ^(b)	7, 8		
Florfenicol	5.0	no residue permitted in unapproved species ^(b)	3, 9		

^(a) Specified residue levels of Sulfadiazine and Sulfadimethoxine may be permissible in some countries. ^(b) Specified residue levels of Oxytetracycline, Tetracycline, and Florfenicol may be permissible in some countries.

* Other published methods of a sensitivity equal to or greater than the stated method may also be used. Provided such methods are published, and approved by the USFDA, USDA, EU or CFIA, and verifiable documented evidence of their approval provided.

ANNEX 4 – Table IV

Required Finished Product Testing for Wild-Harvested Species

Acceptable Tests*	Toxin	Method LOQ/MRPL	Limits	Reference
HPLC	Methyl Mercury ^(a)	28 ppb ^(b)	0.5 ppm	3, 10, 13
Fluorometric HPLC	Histamine (scombrototoxin) ^(c)	20 ppm ^(d)	50 ppm	3, 11, 12

^(a) Mercury testing only required for species known to contain very high levels of mercury (i.e. more than 0.5 ppm), which includes king mackerel, orange roughy, shark, swordfish, tilefish, bigeye tuna, marlin, and Spanish Mackerel (see reference 13).

^(b) LOQ based on 0.5g analytical portion (see reference 10)

^(c) Only required for families of Scombridae, Scombresocidae, Clupeidae, Coryphaenidae and Pomatomidae (see Table 3-2 of reference 3 for full list)

^(d) LOQ based on 10 ML sample unit (see reference 12)

* Other published methods of a sensitivity equal to or greater than the stated method may also be used depending on the method and limit used in the country of destination, provided such methods are published, and approved by the USFDA, USDA, EU or CFIA, and verifiable documented evidence of their approval provided.

REFERENCES

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10. United States Food and Drug Administration Elemental Analysis Manual for Food and Related Products 4.8. High Performance Liquid Chromatographic-Inductively Coupled Plasma-Mass Spectrometric Determination of Methylmercury and Total Mercury in Seafood. Version 1 (June 2008). <https://www.fda.gov/downloads/Food/FoodScienceResearch/LaboratoryMethods/UCM479981.pdf>
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12. Codex Alimentarius 2016. Standard for Canned Finfish. Codex Standard 119-1981. Food and Agriculture Organization of the United Nations. World Health Organization.
13. Mercury levels in commercial fish and shellfish (1990-2012). U.S. Food and Drug Administration. <https://www.fda.gov/food/foodborneillnesscontaminants/metals/ucm115644.htm>

DEFINITIONS

- **Microbiological Criteria** – Criteria defining the acceptability of a product, a batch of food stuffs or a process based on the absence, presence or number of micro- organisms and/or on the quantity of their toxins/metabolites, per unit(s) of mass, volume, area or batch.
- **MRPL** – Minimum Required Performance Limits – minimum limits for analytical methods used for the detection of banned substances. MRPLs are set by the EU for substances that are banned/not allowed to be used. And have set this limit for the analytical method used for substances for which no safe permitted limit has been established.
- **LOQ** – Limit of Quantification. A laboratory analysing for substances for which an LOQ is stated must utilize an approved method that has a minimum performance level in keeping with the LOQ.
- **Residue analysis** involves both screening and confirmatory methods for identifying residues include Gas Chromatography (GC), High Performance Liquid Chromatography (HPLC) and Liquid Chromatography with Mass Spectrometry (LCMS/MS).
- **AOAC** – Association of Official Analytical Chemists
- **BAM** – Bacteriological Analytical Manual

- **HPLC** – High Performance Liquid Chromatography
- **LCMS/MS** – Liquid Chromatography/Mass Spectrometry
- **MPN** – Most Probable Number
- **ppb** – parts per billion ($\mu\text{g}/\text{kg}$)
- **ppm** – parts per million ($\mu\text{g}/\text{g}$)

ANNEX 5 – Water Quality Testing Requirements

		EU Standard ¹	
Test items	Method	MCL Specification	Units
Heavy Metals/Chemicals			
Aluminum (AL)	Modified APHA or other internationally recognized and approved methods for water testing	0.2	mg/L
Antimony (Sb)		0.005	mg/L
Arsenic (As)		0.01	mg/L
Cadmium (Cd)		0.005	mg/L
Chromium (Cr)		0.05	mg/L
Copper (Cu)		2.0	mg/L
Lead (Pb)		0.01	mg/L
Manganese (Mn)		0.05	mg/L
Mercury (Hg)		0.001	mg/L
Nickel (Ni)		0.02	mg/L
Selenium (Se)		0.01	mg/L
Microorganisms			
Coliform	APHA 22nd ed 2012 9222B	0	Per 100mL
E. coli	APHA 22nd ed 2012 9222G/9222H or 9222I	0	Per 250mL
Total Plate Count	APHA 22nd ed 2012 9215B or 9215C	100	cfu/ml at 22°C

Reference:

1. EU Drinking Water Standard – Council Directive 98/83/EC