

CODEX ALIMENTARIUS COMMISSION



**Food and Agriculture
Organization of
the United Nations**



**World Health
Organization**

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REP 11/FFP

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

*Thirty-fourth Session
Geneva, Switzerland, 4 - 9 July 2011*

REPORT OF THE THIRTY-FIRST SESSION OF THE CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

*Tromsø, Norway
11 - 16 April 2011*

Note: *This document incorporates Circular Letter CL 2011/10-FFP*

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CX 5/35

CL 2011/10-FFP
April 2011

TO: Codex Contact Points
Interested International Organizations

FROM: Secretariat, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme,
FAO, 00153 Rome, Italy

SUBJECT: Distribution of the Report of the 31st Session of the Codex Committee on Fish and Fishery Products (REP 11/FFP)

A. MATTERS FOR ADOPTION BY THE 34TH SESSION OF THE CODEX ALIMENTARIUS COMMISSION

Draft Standards and Related Texts at Step 8 and Step 5/8 of the Procedure

1. Draft Standard for Fish Sauce (para. 36, Appendix III);
2. Proposed Draft Code of Practice for Fish and Fishery Products (section on smoked fish and relevant definitions) (para. 70, Appendix V);
3. Proposed Draft Amendment to Section 3.4.5.1 Water of the Code of Practice for Fish and Fishery Products (para. 75, Appendix VI);
4. Proposed Draft Amendment to the Standard for Quick Frozen Fish Sticks (para. 155, Appendix XI);
and
5. Amendment to the Preamble of Section 6, Aquaculture Products of the Code of Practice for Fish and Fishery Products (para. 13, Appendix II).

Governments wishing to propose amendments or comments on the above documents should do so in writing in conformity with the Guide to the Consideration of Standards at Step 8 and Step 5/8 (see Procedural Manual of the Codex Alimentarius Commission) to the above address **before 15 June 2011**.

Proposed Draft Standards and Related Texts at Step 5 of the Procedure

6. Proposed Draft Standard for Quick Frozen Scallop Adductor Muscle Meat (para. 97, Appendix VII);
and
7. Proposed Draft Standard for Fresh/Live and Frozen Abalone (para. 146, Appendix X).

Governments wishing to propose amendments or comments on the above documents should do so in writing in conformity with the Guide to the Consideration of Standards at Step 5 (see Procedural Manual of the Codex Alimentarius Commission) to the above address **before 15 June 2011**.

B. REQUEST FOR COMMENTS

Proposed Draft Standards and Related Texts at Step 3 of the Procedure

8. Proposed Draft Code of Practice on the Processing of Scallop Meat (paras 100-101, Appendix VIII);
and
9. Proposed Draft Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins in the Standard for Live and Raw Bivalve Molluscs (para. 117, Appendix IX).

Governments wishing to submit comments should do so in writing to the above address **before 30 June 2012**.

SUMMARY AND CONCLUSIONS

The summary and conclusions of the 31st Session of the Codex Committee on Fish and Fishery Products are as follows:

Matters for adoption by the Commission:

The Committee:

- advanced to Step 8 and Step 5/8 the Draft Standard for Fish Sauce (para. 36, Appendix III); the Proposed Draft Code of Practice for Fish and Fishery Products (section on smoked fish and relevant definitions) (para. 70, Appendix V); the Proposed Draft Amendment to Section 3.4.5.1 Water of the Code of Practice for Fish and Fishery Products (para. 75, Appendix VI); and the Proposed Draft Amendment to the Standard for Quick Frozen Fish Sticks (para. 155, Appendix XI).
- advanced to Step 5 the Proposed Draft Standard for Quick Frozen Scallop Adductor Muscle Meat (para. 97, Appendix VII); and the Proposed Draft Standard for Fresh/Live and Frozen Abalone (*Haliotis* spp) (para. 146, Appendix X).

Proposals for New Work

The Committee agreed to submit to the Commission, through the Executive Committee proposals for new work on:

- Proposed Draft Criteria/Parameters for screening methods for biotoxins in the Standard for Live and Raw Bivalve Molluscs (para. 119-121); and
- Proposed Draft Code of Practice for Fish and Fishery Products (section on Sturgeon Caviar) (para. 178).

Other matters

The Committee agreed to

- request the Commission to amend the Preamble of Section 6, Aquaculture Products of the Code of Practice for Fish and Fishery Products as on-going work on the Code of Practice for Fish and Fishery Products (para. 15, Appendix II); and
- express its concern to the Commission concerning the provisions forwarded for adoption by the CCFA on food colours carotene beta- (vegetable), 160a (ii) with Note 16: “for use in glaze, coatings or decorations for fruit, vegetables, meat or fish” in Food Category 9.1.1 “Fresh Fish”, as this may lead to cases where glazings with colours are used to falsify fresh fish and to mislead the consumer about the freshness of the fish and fishery products (para. 166).

Other matters of interest to the Commission:

The Committee:

- agreed to return the Proposed Draft Code of Practice on the Processing of Scallop Meat (para. 100, Appendix VIII) and the Proposed Draft Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins in the Standard for Live and Raw Bivalve Molluscs (para. 117, Appendix IX) to Step 3 for comments and consideration at its next session;
- agreed to return to Step 2/3 for redrafting, comments and further discussion at the next session, the Proposed Draft Revision of the Procedure for the Inclusion of Additional Species in Standards for Fish and Fishery Products (para. 109); and the Proposed Draft Amendment to the Standard for Quick Frozen Fish Sticks (Nitrogen Factor for Atlantic Hake) (para.155);
- agreed to hold at Step 7, the Proposed Draft Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish pending the development of the section on food additives, comments and consideration at the next session (para. 64) and to further consider food additive provisions in standards for fish and fishery products at its next session, based on

proposals by an electronic working group (para. 164); and

- agreed to consider how to proceed with the proposed draft appendices on optional final product requirements in the Code of Practice for Fish and Fishery Products (para. 72); a discussion paper on the public health risk of histamine from fish and fishery products (paras 39-40); and a proposal for a code of practice for fish sauce (para. 42) at the next session.

Matters of interest to Other Committees and Task Forces

Codex Committee on Food Hygiene (CCFH)

The Committee agreed to:

- request the advice of CCFH on whether to retain the criteria for *Salmonella* in the Standard for Live and Raw Bivalve Molluscs taking into account the final report of the FAO/WHO Expert Group on *Salmonella* in Bivalve Molluscs (para. 13); and
- inform the CCFH of its decisions on the proposals from CCFH on the hygiene provisions in the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish (paras 49 – 50, 59-61 and 63).

Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS)

The Committee agreed to request CCFICS to consider the proposed amendments to the Generic Model Certificate (para. 171, Appendix XII).

Matters for FAO

The Committee noted that scientific advice from FAO/WHO might be needed in the work on the review of public health risk of histamine from fish and fishery products (para. 41).

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INTRODUCTION

1. The Codex Committee on Fish and Fishery Products (CCFFP) held its 31st Session in Tromsø, Norway, from 11 to 16 April 2011 at the kind invitation of the Government of Norway. Dr Bjørn Røthe Knudsen, Regional Director of the Norwegian Food Safety Authority, chaired the session. The Session was attended by 149 delegates representing 56 Member Countries and one Member organization and Observers from one international organization. The list of participants is attached as Appendix I to this Report.

OPENING OF THE SESSION

2. The Session was opened by Mrs Fride Solbakken, Political Adviser of the Norwegian Ministry of Fisheries and Coastal Affairs. She welcomed the participants and emphasized the important role and achievements of this Committee in protecting consumers' health and ensuring fair trade in seafood and wished delegates success in their work.

3. The Chair also welcomed the participants of the Committee, in particular first-time delegates and underlined the need for good work, efficiency and progress.

Division of Competence¹

4. The Committee noted the division of competence between the European Union (EU) and its Member States, according to paragraph 5, Rule II of the Procedure of the Codex Alimentarius Commission, as presented in CRD 1.

ADOPTION OF THE AGENDA (Agenda Item 1)²

5. The Committee agreed to consider the *Discussion Paper on the Development of a Worldwide Standard for Laver* (CX/FFP 11/31/15, proposed by Republic of Korea) and the *Proposal of New Work for the Recommended International Code of Hygienic Practice for Sturgeon Caviar* (CRD 8, proposed by Iran) under Agenda Item 15 *Other Business and Future Work*.

6. With these additions, the Committee agreed to adopt the Provisional Agenda as the Agenda for the session. It was further agreed to consider Agenda Items in following order: Agenda Item 1, 2, 13, 7, 11, 6, 10, 12, 3, 9, 4, 5, 14, 7, 8, 15, 16 and 17.

MATTERS REFERRED TO THE COMMITTEE BY THE CODEX ALIMENTARIUS COMMISSION AND OTHER CODEX COMMITTEES (Agenda Item 2a)³

7. The Committee noted that several matters were for information purposes or would be addressed under the relevant Agenda Items during the session.

MATTERS ARISING FROM THE WORK OF FAO AND WHO (Agenda Item 2b)⁴

8. The representative of FAO presented a brief report on activities of interest to the Committee as contained in CX/FFP 11/31/2-Add.1. This included findings of an Expert Workshop organized by FAO to improve the understanding of pathways of contamination of aquaculture systems with *Salmonella* and biosecurity measures required to minimize the problem. The follow-up activities being planned by FAO/WHO in response to the request of Codex Committee on Food Hygiene (CCFH) during its work on development of the Guidelines on Application of General Principles of Food Hygiene for the control of *Vibrio* spp in seafood were also presented. Delegations were invited to contribute to or partner in activities related to methodology for detection or enumeration of *Vibrio* spp and towards strain collection and data collection required for development of risk management tools applicable on a wider geographical basis. The Committee was further informed of the finalization of the FAO Technical Guidelines for Aquaculture Certification and the inclusion of minimum substantive criteria on food safety in these guidelines. Efforts of FAO in dissemination of

¹ CRD 1 (European Union Division of Competence)

² CX/FFP 11/31/1

³ CX/FFP 11/31/2, CRD 9 (Comments of Mexico), CRD 10 (Comments of the EU)

⁴ CX/FFP 11/31/2-Add.1, CRD 12 (Interim Report of the Electronic Expert Group on *Salmonella* in Bivalve Molluscs).

scientific information, recent and forthcoming publications and capacity building activities in developing countries were also explained to CCFFP.

Criteria for *Salmonella* in the Standard for Live and Raw Bivalve Molluscs

9. The Representative of FAO presented the work done by FAO/WHO regarding the question addressed to FAO/WHO by the 30th Session of CCFFP on the public health risk due to *Salmonella* in live and raw bivalves and the utility of sampling plans for public health protection. An interim report of the Electronic Expert Group in this regard was presented.

10. The expert group noted that the current Code of Practice for Fish and Fishery Products recommends control of harvesting areas by monitoring faecal coliforms and *E. coli* and does not recommend pathogen testing for routine monitoring of harvesting waters. The interim report highlighted the issues, uncertainties, data gaps and challenges in addressing the question and presented certain scenarios to illustrate the risk, epidemiological evidence and the performance of sampling plans at different levels of prevalence of *Salmonella* in bivalves.

11. Available data on prevalence of *Salmonella* from bivalves indicate differences in levels of prevalence in areas controlled by monitoring faecal indicator bacteria (~1% prevalence in areas from where bivalves can go directly to market and 2-15% depending on geographical location and season in areas from where bivalves need to go for purification step before placing on market). Studies at market level show a prevalence of <1% - 3.4%. Diverse serovars have been observed in few locations from where *Salmonella* in bivalves were investigated. Many of the serovars were not commonly found in human outbreaks. Lack of quantitative data on levels of *Salmonella* in contaminated molluscs, data on consumption practices, serving size, proportion of population consuming live bivalves limits the ability to make any realistic exposure assessment.

12. Nevertheless, the interim report presented estimates of illness based on assumptions on molluscs being positive at a certain level (e.g. 1% bivalves contaminated with 1, 10 or 100 *Salmonella*/mollusc) all the time and using the dose-response curve constructed in the risk assessment for *Salmonella* in eggs and broiler chicken. Epidemiological data indicates that outbreaks of salmonellosis associated with live bivalve molluscs are very rare and even considering the under-reporting factor available for some countries, the current model over-estimates the risk. The work of the expert group on the performance of sampling plan indicates that to detect *Salmonella* at 1% (seen in areas controlled by faecal indicator bacterial monitoring) level of prevalence with 95% confidence level, 299 samples need to be tested. Even testing of 60 samples would be able to detect only 45% of a contaminated batch. Though testing of a lower number of samples may be adequate for areas with higher prevalence, molluscs from these areas would have higher levels of indicator bacteria and are unlikely to reach market without purification as per the current practices. Thus the present sampling plan would have very little value in public health protection.

13. Based on these findings, the Committee discussed whether or not to retain the current criteria for *Salmonella* in the Standard for Live and Raw Bivalve Molluscs. Noting that even though the final report was not yet available, the conclusions in all probability would not be any different from that presented in the interim report, the Committee concluded that it might be necessary to remove the criteria for *Salmonella* from the Standard. It was however agreed to discuss this issue further at the next session pending the availability of the final report. The Committee also agreed to request the Committee on Food Hygiene (CCFH) to provide their advice on whether the criteria for *Salmonella* should be retained in the Standard for Live and Raw Bivalve Molluscs based on the final report of the Expert Group.

Matters of Interest Arising from Other International Organisations (OIE)⁵

14. The Committee was informed that the reference to the OIE *Aquatic Code* in section 6 of the *Code of Practice for Fish and Fishery Products* (CAC/RCP 52-2003) needed to be updated and considered the proposal of OIE to amend section 6 (paragraph 2 of the preamble). The Committee agreed to replace the first three sentences with that as proposed in CX/FFP 11/31/2-Add.2 as relevant,

⁵ CX/FFP 11/31/2-Add.2

but did not agree with the rest of the proposal as these were outside the scope of the Code of Practice for Fish and Fishery Products.

15. The Committee agreed to send to the 34th Session of the Commission the amendment to the preamble of section 6, Aquaculture Production for adoption (Appendix II).

16. The Committee further agreed to recommend to the Commission that cooperation and consultation with OIE should be strengthened to avoid inconsistency between the standards established by the Commission and OIE.

DRAFT STANDARD FOR FISH SAUCE (Agenda Item 3)⁶

17. The Committee recalled that the Draft Standard had been advanced to Step 5 by its last session, adopted at Step 5 by the Commission and circulated for comments at Step 6. The Committee considered the text section by section, taking into account the revised version and explanations in reply to some comments put forward by Thailand and Viet Nam in CRD 17 and 18, and made the following amendments and comments, in addition to editorial changes.

SCOPE

18. The Committee agreed to clarify that fish sauce was produced “by mixing fish and salt”.

19. In reply to a comment, the Committee recalled that there was no need to refer to “natural fermentation” in the title or scope as it was clear from the scope and definitions that only natural fermentation was allowed and acid hydrolysis was excluded.

2.2 Process Definition

20. The definition was reworded and presented in two paragraphs, and it was clarified that “succeeding extractions may follow by adding brine to further the fermentation process.”

3. Essential Composition and Quality Factors

21. In section 3.1.2 Salt, a reference to the Standard for Food Grade Salt, was inserted. It was agreed that section 3.1.3 would refer to water rather than brine in view of the process used for fermentation.

3.4 Chemical properties

22. As regards pH, the Committee considered a proposal to delete the range of values or to lower the value of 5, taking into account that if carbohydrates were used in the fermentation process, it would result in release of lactic or acetic acid and a lower pH. The Committee noted that when drafting the standard, pH had been included as an indicator of quality as fish sauce should be produced from good quality fresh fish, which has a neutral pH, and pH increases with the decomposition process. After some discussion, it was agreed to specify that the pH should not be below 4.5 if ingredients were used to facilitate fermentation and to retain the upper limit.

23. The Committee had an extensive discussion on the total nitrogen content. Some delegations proposed to amend the minimum content from 10 g/l to 7.5 g/l, taking into account that there are different types of products corresponding to consumer preference in the countries producing fish sauce and the standard should cover all types of fish sauce. The Delegation of Thailand recalled that, when drafting the standard, nitrogen content was included as an important quality factor for the following reasons: in practice the protein content in fish sauce was often much higher; fish sauce was a source of protein; and the minimum level of 10g/l was intended to prevent fraud by dilution of the product.

⁶ CX/FFP 11/31/3 (comments of Canada and Philippines), CRD 4 (comments of USA), CRD 6 (comments of Japan), CRD 9 (comments of Mexico), CRD 10 (comments of EU), CRD 14 (comments of Indonesia), CRD 15 (comments of Malaysia), CRD 16 (comments of Ghana), CRD 17, 18 and 26 (comments of Thailand), CRD 22 (comments of Nigeria), CRD 28 (proposed terms of reference of eWG on histamine prepared by Japan), CRD 29 (proposal of the United States on nitrogen content), CRD 30 (report of the working group on food additives)

24. The Committee considered an alternative proposal from the United States to address this issue through labelling, with an indication on the label of the total nitrogen content (CRD 29) and related descriptors. One delegation indicated that descriptors could be considered as commercial and optional requirements and should not be included in the standard, but if necessary in the code of practice. Another delegation noted that different types of quality could be defined for the same product, as was the case in other standards, taking into account geographical differences.

25. After some discussion, the Committee agreed to retain a total nitrogen content of 10 g/l, indicating that the competent authority may also specify a lower level of total nitrogen if it is the preference of that country.

4. Food Additives

26. The Committee agreed to replace the current text with the list of additives proposed by the in-session working group on food additives (Appendix 3 of CRD 30) with a few editorial amendments.

27. The Delegation of the European Union expressed its reservation to the inclusion of caramel III-Ammonia Caramel (INS 150c) due to safety concerns.

5. Contaminants

28. The Committee agreed to insert a new paragraph to address the risks related to biotoxins in raw material used to produce fish sauce. The reference to pesticide residues was deleted in the paragraph on product from aquaculture fish as no Codex MRLs have been established for fish and fishery products.

6. Hygiene and Handling

29. The Committee noted a proposal to lower the level for histamine, taking into account the occurrence of allergies. The Committee recalled that the Committee on Food Hygiene had considered the hygiene provisions in the standard and endorsed the level of histamine, and the current level was retained.

7. Weights and Measures

30. In section 7.1.1 Minimum Fill, the Committee inserted detailed recommendation concerning the filling of container, on the basis of the provisions in the Draft Regional Standard for Chili Sauce, in view of the similarities of the products.

31. In section 7.1.3, the Committee agreed to add a new sentence on the average net weight or net volume, for consistency with similar sections in other standards.

8. Labelling

32. The last sentence concerning the reference to “natural fermentation” was deleted as all products covered by the standard are obtained by natural fermentation.

33. As a result of the discussion on total nitrogen content in section 3.4, the Committee agreed to add a new section “Labelling of Nitrogen Content” to reflect that competent authorities may require the declaration of nitrogen content on the label and alternatively require descriptors that reflect the total nitrogen level.

9. Sampling, Examination and Analysis

34. In section 9.3, a reference to AOAC 981.12 (general Codex method for the determination of pH) was inserted and the explanation concerning the need to dilute fish sauce with water 1:10 prior to analysis was retained.

11. Lot Acceptance

35. Paragraph (i) was redrafted for clarification purposes and consistency with other standards and paragraph (ii) was completed with references to all relevant requirements in the Standard.

Status of the Draft Standard for Fish Sauce

36. The Committee agreed to advance the Draft Standard for Fish Sauce to Step 8 for adoption by the 34th Session of the Codex Alimentarius Commission (Appendix III).

37. The Committee noted that the provisions for food additives, labelling and methods of analysis and sampling would be forwarded to the relevant committees for endorsement.

Other Matters

Histamine

38. The Delegation of Japan proposed to consider issues related to histamine from a more general perspective, to review public health risk of histamine from fish and fishery products, taking into account existing sampling plans, different levels of protection at the national level, and noted this work should be considered in conjunction with the work on microbiological criteria underway in the Committee on Food Hygiene. The Representative of FAO supported this initiative and indicated that FAO was prepared to contribute to such work, and also noted the need to consider trade implications and food safety issues related to histamine.

39. The Committee agreed to establish an electronic working group led by Japan and the United States with the cooperation of FAO, working in English, to prepare a discussion paper which would consider:

- Review epidemiological data to estimate public health risk of histamine in fish and fishery products
- Review existing sampling plans in different countries/regions
- Evaluate how the sampling plans and the histamine maximum limits work for risk reduction and consumer health protection
- Review any trade implication/problem associated with histamine controls including sampling plans

40. It was agreed that the working group would take into account the work of the CCFH working group on the revision of the Principles for the Establishment of Application of Microbiological Criteria for Foods.

41. The need for scientific advice from FAO/WHO was also pointed out. The Representative of FAO noted that countries need to participate by providing data required for this work.

Consideration of a Code Practice

42. The Delegation of Thailand and Viet Nam proposed to develop a Code of Practice for fish sauce, in view of the need for additional guidance to support compliance with the standard. The Committee agreed that in view of its current workload, it would not be possible to initiate additional new work at the current session and invited Thailand and Viet Nam to prepare a discussion paper and project document for consideration by the next session.

DRAFT STANDARD FOR SMOKED FISH, SMOKE-FLAVOURED FISH AND SMOKE-DRIED FISH (Agenda Item 4)⁷

43. The Committee recalled that the Draft Standard had been advanced to Step 5 by its last session, adopted at Step 5 by the Commission and circulated for comments at Step 6. The Committee considered the text section by section and in addition to some editorial changes made the following amendments and/or comments:

⁷ ALINORM 10/33/18, Appendix VI, CX/FFP 11/31/2, CX/FFP 11/31/4 (comments of the USA), CRD 2 (Report of the Working Group on Smoked Fish), CRD 3 (comments of Philippines), CRD 6 (comments of Japan), CRD 7 (comments of IIR), CRD 10 (comments of EU), CRD 11 (comments of Egypt), CRD 13 (comments of Mali), CRD 14 (comments of Indonesia), CRD 15 (comments of Malaysia), CRD 16 (comments of Ghana), CRD 21 (comments of Brazil), CRD 22 (comments of Nigeria) and CRD 30 (Report of the In-session Working Group on Food Additives).

2.1 Smoked Fish

2.1.2 Process Definitions

44. It was agreed to have a separate definition for “smoke condensates” and to amend the definition for “drying” for consistency with the Proposed Draft Code of Practice for Fish and Fishery Products, section on smoked fish. These definitions were also included or amended as appropriate in sections 2.2.2 and 2.3.2.

2.2.2 Process Definition

45. The definition for salting was also included as appropriate for this section.

2.3.2 Process Definition

46. It was agreed to replace the water activity of 0.85 or less with 0.75 or less and to include the equivalent moisture content of 10% or less in the definition for “smoke drying” as more appropriate for the product and in alignment with section 12.3.1 of the Code of Practice. The definition was further amended to indicate that the water activity and moisture content levels were necessary to control bacterial pathogens and fungal growth.

4 Food Additives

47. The Committee agreed with the proposal of the in-session working group on food additives for further development of this section by an electronic Working Group on Food Additives (see Agenda Item 13).

6.3 Parasites

48. The Committee considered a proposal by the Delegation of Egypt to indicate that fish flesh should not contain dead parasites or cysts of parasites as this could pose a health risk to consumers who were allergic to nematodes. The Committee did not agree with this proposal as it was emphasized that this was not practical for the production of the products covered by the Standard.

6.5 *Clostridium botulinum*

49. The Committee agreed to change paragraph 1 as proposed by the CCFH (Annex II of CX/FFP 11/31/2), but did not agree with the proposal to delete the second paragraph. It was noted that many traditional products were made from uneviscerated fish; that the fish used were normally caught far off shore and did not pose any risk from *Clostridium botulinum*; and that over the years no outbreaks had been reported from the consumption of these products. It was pointed out that whether fish was eviscerated or not, this would not eliminate spores of *Clostridium botulinum* and other measures were necessary to eliminate or minimise the risk.

6.6 Histamine

50. The list of susceptible species for histamine production was included as proposed by CCFH.

7.3 Storage Instructions

51. The title and the text were amended to include “handling” as such instructions were essential for preventing death from botulinum toxin.

8.1 Sampling

52. It was agreed to delete the 3rd paragraph referencing the Principles for the Establishment and Application of Microbiological Criteria for Foods as the General Guidance on Sampling as referred to in the 1st paragraph also covered microbiological sampling and the aforementioned principles were already covered in Section 6 on Hygiene and Handling. Accordingly the reference to “quality” in the 1st paragraph was deleted.

8.4 Determination of Gelatinous Conditions

53. This section was deleted as the method was not for determination of gelatinous conditions, but for flesh abnormalities.

8.6 Temperatures for Thawing

54. It was agreed to replace “temperatures low enough” with “refrigeration temperatures” as more correct and appropriate to maintain the quality and safety of the samples.

8.9 Determination of the viability of parasites

55. The section was amended to more accurately reflect that the method referred was for extracting and testing the viability of parasites and the reference to the Standard for Salted Atlantic Herring and Sprats was inserted.

Determination of water phase salt and determination of water activity

56. It was agreed to include methods for the determination of water phase salt and for water activity as new sections 8.8 and 8.9, respectively and to renumber the rest of the sections accordingly.

9.3 Odour and Flavour

57. The title and text was changed to include “texture” as objectional textures or flesh abnormalities were generally covered during flavour and odour analysis and as a consequence, 9.4 “Flesh abnormalities” was deleted.

10. Lot Acceptance

58. Subsection (iii) was amended to indicate all the relevant sections applicable for lot acceptance.

Annex I Procedures sufficient to kill parasites

59. The Committee agreed with the changes proposed by the CCFH to include a reference to the FAO Fisheries Technical Paper 444 which was a reference for amongst others, the first bullet point in this annex.

Annex 2 Examples of combinations of product attributes that minimise the likelihood of *Clostridium botulinum* toxin formation

60. In the first paragraph:

- the “level of protection that the country chooses for itself for this particular risk” was deleted as already well covered by the need for risk management choices to be made within a science-based framework;
- the temperature range for a 5% aqueous phase salt and the percentage aqueous phase salt for a temperature over 10°C was introduced for clarity; and
- the last sentence was aligned with an earlier decision regarding water activity and moisture content level.

61. The proposal in paragraph 2 for the water activity of 0.94 and the proposals in the table were accepted or amended as follows:

- the comment on aerobic packaging was amended for clarity to indicate that “aerobic packaging does not necessarily prevent growth and toxin formation of *C. botulinum*.”
- The note to explain aerobic packaging was deleted as too complicated.
- The last sentence in the comments column of the 3rd row was deleted as already covered by the opening statement to the table.

Conclusion

62. In view of the need to further elaborate the section on food additives and the considerable progress made on the rest of the Standard, it was agreed that the Draft Standard should be held at Step 7 while the Section 4 Food Additives was elaborated with the understanding that the next session would focus its discussion on the food additives in order to advance the Standard to Step 8 for adoption.

63. The Committee also agreed to inform the CCFH of its decision on their proposals for the hygiene provisions and related annexes.

Status of the Draft Standard for Smoked Fish, Smoke-Flavoured and Smoke-Dried Fish

64. The Committee agreed to hold the Draft Standard at Step 7 and to return Section 4 Food Additives for redrafting by the electronic Working Group on Food Additives, comments at Step 6 and consideration by the next session (Appendix IV).

PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS (OTHER SECTIONS INCLUDING SMOKED FISH) (Agenda Item 5)⁸

65. The Committee recalled that its last Session had agreed to return the Section on Smoked Fish to Step 2/3 and to re-establish the physical working group, led by The Netherlands, to meet immediately prior to this Session to consider comments and prepare proposals for consideration by this session.

66. The Netherlands as the chair of the physical working group introduced the report (CRD 2). Besides editorial changes, the working group agreed to include information on how to control microbiological hazards, especially the development of histamine, survival of parasites and growth of *Clostridium botulinum*, to avoid chemical and physical contamination, and to avoid deterioration of quality throughout the document. Technical guidance was also provided for *Staphylococcus aureus*.

67. In addition, the working group included the following information: to avoid contamination from equipment in section 12.1.2 Salting; to avoid off-flavours and odours from mould or fungus in 12.1.5 Reception of wood or plant material for smoking; to avoid contamination of PAH in Sections 12.1.7 Reception and storage of smoke condensate, 12.1.9 Smoke generation from wood and other plant material, and 12.3.1 Smoke drying. The working group also agreed to include new sections “Labelling” for allergens after 12.1.16 Storage and “Pre-drying” before 12.3.1 Smoke drying.

68. The Committee considered text in CRD 2 section by section and made the following amendments and comments, in addition to editorial changes.

2.9 Smoked fish, Smoke-flavoured fish, Smoke-dried fish

69. The Committee agreed to amend the definitions of “Smoking by regenerated smoke”, “Drying” and “Packaging” to align with the definitions in the Draft Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish (Agenda Item 4).

Status of the Proposed Draft Code of Practice for Fish and Fishery Products (Other Sections including Smoked Fish)

70. The Committee agreed to forward the Proposed Draft Code of Practice for Fish and Fishery Products (section on smoked fish) to the 34th Session of the Commission to Step 5/8 with the recommendation to omit Steps 6 and 7 (Appendix V).

71. The Committee noted that the provisions for hygiene would be forwarded to the Committee on Food Hygiene for endorsement.

Other matters

72. The Committee was reminded that several appendices on optional final product requirements still needed finalization and discussed whether and how to proceed with these appendices⁹. It was noted that the optional requirements may no longer be necessary in view of the new approach to standards development which focused mainly on safety issues and on essential quality provisions. The Committee was however not in a position to take a decision at this session and agreed to discuss the matter further at the next session. It was agreed to request comments on how to proceed based on a

⁸ CX/FFP 11/31/5; CX/FFP 11/31/5-Add.1 (Comments of Argentina, Canada, Cuba, Ecuador, Egypt, Iran, Philippines, IOFI); CRD 2 (Report of in-session working group); CRD 4 (Comments of the USA); CRD 6 (Comments of Japan); CRD 9 (Comments of Mexico); CRD 10 (Comments of EU); CRD 11 (Comments of Egypt); CRD 14 (Comments of Indonesia); CRD 16 (Comments of Ghana); CRD 22 (Comments of Nigeria)

⁹ ALINORM 08/31/18, Appendix VI

discussion paper to be prepared by the Secretariat outlining the background on the work on the optional final product requirements to date and to provide some options on how to proceed.

PROPOSED DRAFT AMENDMENT TO SECTION 3.4.5.1 WATER OF THE CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS (Agenda Item 6)¹⁰

73. The Committee recalled that its last Session had agreed to consider the amendment of Section 3.4.5.1 Water in the *Code of Practice for Fish and Fishery Products* (CAC/RCP 52-2003) in relation to the chlorination at this Session.

74. Noting the decision taken in the Committee on Food Hygiene on the use of chemical decontaminants in the Guidelines for the Control of *Campylobacter* and *Salmonella* spp in Chicken Meat that the use of these decontaminants, including chlorine, could be used subject to approval by the competent authority where appropriate (REP11/FH, para. 28), and the fact that this principle could apply to products covered by the Code of Practice for Fish and Fishery Products, the Committee agreed with the text proposed in CRD 24.

Status of the Proposed Draft Amendment to Section 3.4.5.1 Water of the Code of Practice for Fish and Fishery Products

75. The Committee agreed to forward the proposed draft amendment to the 34th Session of the Commission for adoption at Step 5/8 with the recommendation to omit Steps 6 & 7 (Appendix VI).

PROPOSED DRAFT STANDARD FOR QUICK FROZEN SCALLOP ADDUCTOR MUSCLE MEAT (Agenda Item 7)¹¹

76. The Committee recalled that the Draft Standard had been returned to Step 3 for comments and consideration by this session. In view of the considerable comments received, the Committee agreed to establish an in-session Working Group led by Canada to revise the proposed draft Standard for consideration by the Committee.

77. The Delegation of Canada introduced the revised proposed draft Standard as presented in CRD 31-R and informed the Committee that the in-session working group had considered the proposed draft Standard up to and including section 7.1. The Committee agreed to use CRD 31-R as the working document for its discussion. The text was considered section by section and in addition to some editorial changes, the following amendments and/or comments were made:

Scope

78. The Committee had considerable discussion on a proposal to expand the scope to include scallop meat with roe attached, a product that was widely traded and not covered by the Standard for Live and Raw Bivalve Molluscs. It was recalled that the reason for having a separate standard for scallop adductor muscle meat from the standard for bivalve molluscs was because of the biotoxin risk associated with bivalves covered by the Standard for Live and Raw Bivalve Molluscs. Some delegations indicated that it was necessary to consider activity levels of biotoxins in roe before deciding on which standard could better accommodate this product. It was pointed out that the standard under discussion relied on end product testing, whereas the Standard for Live and Raw Bivalve Molluscs had other control measures for control of biotoxins. Another delegation stated that bivalves without water or food additives, with shell, viscera and roe attached were covered by the Standard for Live and Raw Bivalve Molluscs and that the scallops with roe on and with water or food additives needed to be accommodated to facilitate international trade and consumer protection. This

¹⁰ ALINORM 10/33/18, Appendix IV, CL 2009/29-FFP, CX/FFP 11/31/6 (Comments of Argentina, Egypt and New Zealand), CX/FFP 11/31&-Add.1 (comment of the EU and Kenya), CRD 9 (Comments of Mexico), CRD 16 (Comments of Ghana), CRD 22 (Comments of Nigeria), CRD 24 (Comments of Brazil, Canada, EU, USA)

¹¹ ALINORM 10/33/18, Appendix VII, CL 2009/29-FFP, CX/FFP 11/31/7 (comments of Egypt), CX/FFP 11/31/7-Add.1 (comments of the EU and Kenya), CRD 3 (comments of Philippines), CRD 4 (comments of the USA), CRD 5 (comments of Chile), CRD 9 (comments of Mexico), CRD 14 (comments of Indonesia), CRD 22 (comments of Nigeria) and CRD 31-R (Report of the In-session Working Group on Scallops)

could be done either in a new standard or in the standard under discussion. Several delegations supported the latter approach.

79. It was noted that the risk from scallop meat with roe attached did not necessarily pose an additional risk from biotoxins and that appropriate measures from the Standard for Live and Raw Bivalve Molluscs could be transferred to the standard for scallop meat for control of biotoxins, if necessary. The Committee therefore agreed to include these products in the scope of the Standard. Accordingly, subsection (ii) was amended and in the second sentence in section 2.1.1. scallop meat, “if applicable” was reinserted.

2.2.1 Scallop Meat

80. For purposes of clarity, it was agreed to replace “prevent” with “minimize”; “avoidable” with “necessary”; and “temperature of melting ice” with “below 4°C” and to apply the latter change throughout the text as necessary.

3.4 Final Product

81. Subsection 3.4.2.2 was amended to consolidate conflicting sections covering the same subject and to remove the requirement that added water be allowed only to the extent technologically unavoidable which was deemed to be ambiguous.

82. Section 3.5 was amended to more clearly illustrate that the provisions in this subsection applied to subsections 3.4.2.1 and 3.4.2.2.

4.2 Scallop Meat Products Processed With Added Water

83. The list of additives were replaced by a reference to Table 1 of the General Standard for Food Additives for phosphates at a level of 5000mg/kg as P₂O₅ which are specifically used for quick frozen scallop meat products processed with added water. It was necessary to include provisions for phosphates as the GSFA did not allow phosphates for food category 09.2.1 “Frozen fish, fish fillets and fish products, including molluscs, crustaceans and echinoderms”.

5 Contaminants

84. The reference to pesticide residues was deleted in the section 5.1 as no Codex MRLs have been established for fish and fishery products.

7 Labelling

85. The Committee considered a proposal to include requirements for added water to be listed as an ingredient and for the percentage scallop meat to appear on the label in 7.1 Name of the Food. It was pointed out that although the requirement for listing ingredients on the label was covered by the General Standard for the Labelling of Prepackaged Foods, that this was necessary in the light of the product in question. The Committee was further informed that a similar requirement had been agreed to for inclusion in the Standard for Fermented Milks (CODEX STAN 243-2003). The Committee agreed to insert this requirement in the section in square brackets for further consideration at the next session.

86. 7.4 Labelling of Non-retail Containers was amended to include a provision for the product to be identified by either the common and/or scientific names in line with a similar provision in the Standard for Live and Raw Bivalve Molluscs.

87. 7.5 Food Additives was deleted as generally listing of ingredients was sufficiently covered by the General Standard for the Labelling of Prepackaged Foods.

8.1 Sampling

88. Paragraph (ii) was deleted as it was sufficiently covered by the General Guidelines on Sampling mentioned in paragraph (i).

8.4 Determination of Net Weight of Products Covered by Glaze

89. This section was simplified by referencing the AOAC 963.18 for net contents of frozen seafoods.

8.6 Examination for Parasites

90. The provisions were replaced by more appropriate scientifically-based requirements for consistency with other similar standards for fish and fishery products.

9.3 Odour/Flavour

91. The title and contents of this section was amended to include “texture” and to allow for a mechanism to inspect products for other organoleptic defects other than odours and flavours indicative of decomposition and/or rancidity.

9.4 Parasites

92. It was agreed to place the provisions in this section in square brackets as there were different opinions on the criterion of 20%. Some were of the opinion that 20% was too stringent and that a criterion should not be necessary, while a proposal for a criterion of 5% was also put forward.

9.5 Objectionable matter

93. The Committee agreed to delete reference to “roe” as no longer applicable in view of the expanded scope and to insert “fragments of shell” as additional objectionable parts of scallops covered by the provision. The Committee agreed to place the tolerance of 10% in paragraph (i) and in paragraph (ii) “affecting more than 10% of the sample by weight” in square brackets as no agreement could be reached to lower the tolerance or to delete.

10 Lot Acceptance

94. Paragraphs (i) and (ii) were amended as required by the Procedural Manual and for consistency with other standards. Paragraph (v) was completed with references to all relevant requirements in the Standard.

Annex A

95. The reference in the 3rd paragraph was amended in view of an earlier decision on section 8.4.

96. The last paragraph was amended for purposes of clarity as proposed in CRD 4, but “grit” was replaced by “sand” for understandability.

Status of the Proposed Draft Standard for Fresh and Quick Frozen Raw Scallop (*Pectinidae*) Adductor Muscle Meat

97. The Committee agreed to forward the Proposed Draft Standard to the 34th Session of the Commission for adoption at Step 5 (Appendix VII).

PROPOSED DRAFT CODE OF PRACTICE ON THE PROCESSING OF SCALLOP MEAT (Agenda Item 8)¹²

98. The Committee recalled that its last session had agreed to retain the Proposed Draft Code of Practice at Step 4 pending further progress on the development of the Proposed Draft Standard for Quick Frozen Scallop Adductor Muscle Meat (Agenda Item 7).

99. The Committee did not discuss the Code at the session, but agreed to consider it further at the next session.

Status of Proposed Draft Code of Practice on the Processing of Scallop Meat

100. The Committee agreed to return the Proposed Draft Code of Practice on the Processing of Scallop Meat to Step 3 for comments and consideration at the next session (Appendix VIII).

¹² CX/FFP 11/31/8, CRD 4 (Comments of USA), CRD 5 (Comments of Chile), CRD 9 (Comments of Mexico), CRD 10 (Comments of EU)

101. The Committee further agreed to establish a physical working group led by Canada, working in English, to meet immediately prior to the next session to consider comments and prepare proposals for consideration by the 32nd Session of the Committee.

PROPOSED DRAFT REVISION OF THE PROCEDURE FOR THE INCLUSION OF ADDITIONAL SPECIES IN STANDARDS FOR FISH AND FISHERY PRODUCTS (Agenda Item 9)¹³

102. The Committee recalled that its last session had discussed the general aspects of the revision of the procedure and had agreed to circulate it for comments at Step 3.

103. Some delegations expressed the view that the work on the revision of the Procedure was not a priority of the Committee and should be discontinued for the following reasons: the Committee had important food safety issues to address which should be dealt with as a matter of priority, and several other important items of work; the current procedure was acceptable and could still be used; and the extensive efforts required to develop a new procedure were not justified in view of the very limited requests for new species that had been put forward since the creation of the Committee. Some delegations also pointed out that the proposed new procedure would rather result in the exclusion of new species than in facilitating their inclusion. As an alternative, it was proposed to make a limited number of amendments to the current procedure in order to update it and facilitate its application.

104. Other delegations pointed out that substantial work had already been carried out on the revision and should not be discontinued as the current procedure was not adequate and it was essential to ensure the scientific basis of the process, as well as transparency and fairness to all member states, taking into account the importance of a well designed procedure for exporting countries.

105. Some delegations indicated that the information required on resources was too extensive and would be difficult to obtain in practice, especially if countries had not been exporting the species concerned for a long time and could not provide production and trade data covering several years.

106. As regards the need for molecular data as a routine requirement, it was clarified that this would apply only when it was not possible to establish the identity of the species on the basis of morphological characteristics, for example when the fish was not whole.

107. The Committee generally agreed that there was a need to simplify the procedure and that consideration could be given also to a simplified diagram (see CX/FFP 11/31/9-Add.1), and therefore agreed to proceed with the revision for further consideration at its next session. Some delegations expressed the view if consensus is not reached on the revision of the procedure, the work should be discontinued.

108. The Committee agreed to establish an electronic working group led by Chile and France, working in English, French and Spanish, with the mandate of working towards a simplified procedure with the aim of facilitating the inclusion of new species in standards for fish and fishery products.

Status of the Proposed Draft Revision of the Procedure for the Inclusion of Species in Standards for Fish and Fishery Products

109. The Committee agreed to return the Proposed Draft Revision to Step 2/3 for redrafting by the above mentioned working group, comments and consideration by the next session.

¹³ ALINORM 10/33/18, Appendix VIII, CL 2009/29-FFP, CX/FFP 11/31/9 (comments of Argentina, Egypt, New Zealand), CX/FFP 11/31/9-Add.1 (comments of EU, Kenya) , CRD 3 (comments of Philippines), CRD 5 (comments of Chile), CRD 9 (comments of Mexico), CRD 14 (comments of Indonesia), CRD 27 (comments of EU)

PROPOSED DRAFT LIST OF METHODS FOR DETERMINATION OF BIOTOXINS IN THE STANDARD FOR LIVE AND RAW BIVALVE MOLLUSCS (Agenda Item 10)¹⁴

110. The Committee recalled that its last session had considered the methods for the determination of biotoxins and had agreed to develop performance criteria but could not decide at that stage whether specific methods would be included in the Standard. The Committee had agreed to establish an electronic working group led by Canada to address the issues related to the determination of biotoxins.

111. The Delegation of Canada indicated that, according to its mandate, the working group had proposed performance criteria/principles for methods for the determination of biotoxins for inclusion in the Standard (Annex II of CX/FFP 11/31/10), transferring the Table presenting examples of methods (Annex IV) to the Code of Practice for Fish and Fishery Products, with a note indicating that the methods not meeting the performance criteria for reference methods could be used for monitoring and screening purposes. It was also recommended to consider the development of similar performance criteria/principles for screening methods (Annex III).

112. Several delegations supported the inclusion of performance criteria in the Standard as it would allow more flexibility for governments in the selection of methods, especially to use recent methods as they were developed, and also supported the inclusion of a list of methods complying with the criteria as examples. As regards the proposal to include the methods in the Code of Practice rather than the Standard, the Committee recalled that if a standard includes maximum levels, the relevant methods should be listed in the standard. Recommendations concerning methods for screening and monitoring purposes could be included in a code of practice when related to the provisions in the Code.

113. The Committee discussed whether the list of methods should be retained in the standard. Some delegations pointed out that according to the criteria, several methods currently in use, especially those using the mouse bioassay, did not comply with the criteria and therefore should not be included. Several delegations pointed out that they used the mouse bioassay methods at the national level for control purposes, and that the elimination of the AOAC 2005.06 method for Saxitoxin from the Standard would considerably limit their possibilities for the selection of reference methods. Some delegations also referred to the difficulties of obtaining certified reference materials (CRM) for biotoxins, especially for developing countries, due to high costs and limited availability.

114. Some delegations pointed out that the criteria were developed on a scientific basis and could not be changed, however methods that did not meet the criteria could be used for screening purposes. It was also noted that even if the list of methods was included as an example, it would have to be updated regularly, which may not be easy in practice. The Committee therefore agreed that section I-8.6 Determination of Biotoxins would include only the performance criteria and that no list of methods would be included. The Committee also agreed that the title should read "Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins".

115. The Committee also agreed that as the working document had not been circulated for comments due to lack of time, and as some delegations indicated that they needed to consult with their experts at the national level, the revised section would be circulated for comments at Step 3.

116. The Representative of FAO recalled that the Expert Consultation on Marine Biotoxins (2004) had considered the methods for the determination of biotoxins and noted the concerns expressed by some delegations regarding the availability of adequate methods and the need for updated scientific information, and therefore proposed that FAO could host a mechanism to post on its website relevant information on the methods which could be used for control or for screening drawing on current expertise, including the work carried out in the working group. The Committee welcomed this offer and thanked the Representative of FAO for this initiative.

¹⁴ CX/FFP 11/31/10, CRD 5 (comments of Chile), CRD 9 (comments of Mexico), CRD 19 (comments of Norway), CRD 25 (comments of Viet Nam), CRD 32 (proposal for new work prepared by Australia and Canada)

Status of the Proposed Draft List of Methods for Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs

117. The Committee agreed to return the Proposed Draft Section I-8.6 in the Standard for Live and Raw Bivalve Molluscs to Step 3 for comments and consideration by the next session (Appendix IX).

New Work

118. The Committee agreed with the proposal of the electronic working group to consider performance criteria for screening methods, for inclusion in the Code of Practice for Fish and Fishery Products. The Committee noted a proposal to extend the consideration of screening methods for biotoxins to other species than bivalve molluscs, and agreed that this would need further consideration. The Committee agreed to establish an in-session working group chaired by Canada and working in English in order to develop a project document for such new work.

119. The Committee agreed to propose new work on the development of criteria/parameters for screening methods for determination of biotoxins in live and raw bivalve molluscs (and other commodities, e.g. abalone) which would focus on the following:

- Consider the current Codex definition of Screening Methods as given in the “Codex Veterinary Drug Residues in Food Glossary” to determine if it is appropriate in this context, and if not, develop a satisfactory definition.
- Develop Draft Performance Criteria/Principles for Screening Methods for Biotoxins in the Standard for Live and Raw Bivalve Molluscs, taking into account the criteria developed in the “Draft Performance Criteria/Parameters for Reference and Confirmatory Methods for the Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs”.
- Determine whether the criteria developed for Reference and Confirmatory and Screening methods for Live and Raw Bivalve Molluscs can be applied to other commodities covered by the CCFFP.

120. The Committee agreed with the purpose of the new work and noted that the complete project document would be prepared by Australia and Canada for submission to the Executive Committee and the Commission.

121. The Committee agreed that, subject to approval of new work, an electronic working group led by Canada, working in English, would be established with the following mandate:

- Propose criteria/parameters for *screening* methods for Biotoxins in the Standard for Live and Raw Bivalve Molluscs
- Consider whether the criteria developed for both Reference and Confirmatory and Screening methods should reside in the Code of Practice and, if so, be applied to other commodities covered by the CCFFP for which biotoxin requirements apply.
- Present a summary report of the work carried out by the e-WG along with recommendations to the 32nd session of the CCFFP.

PROPOSED DRAFT STANDARD FOR FRESH/LIVE AND FROZEN ABALONE (*HALIOTIS SPP.*) (Agenda Item 11)¹⁵

122. The Committee recalled that its last session had agreed to return the proposed draft standard for redrafting by South Africa, comments and consideration by this session.

123. The Committee considered the proposed draft section by section and in addition to some editorial changes made the following amendments and/or comments:

¹⁵ CX/FFP 11/31/11;CX/FFP 11/31/11-Add.1 (comments of Argentina, Australia, Canada, Costa Rica, Kenya, Philippines and USA), CRD 5(comments of Chile), CRD 9 (comments of Mexico); CRD 10 (comments of the EU).

1. Scope

124. The 2nd and 3rd sentences were amended to more accurately reflect that mucous was not always removed during shucking. The “freshness” was deleted in the 4th sentence as redundant. “Fresh chilled or frozen” was inserted in the last sentence for consistency with the title of the standard.

Part I – Live Abalone

I-2.2 Process Definition

125. The need for approval of the harvesting area or farm by the official agency having jurisdiction was deleted as unnecessary as abalone posed a lesser microbiological hazard than filter feeder shellfish for which such approval was necessary.

I-3.2 Water for Purging and I-3.3 Ice for Packing

126. These provisions were deleted as the information was more appropriate for a code of practice.

I-5 Contaminants

127. The Committee agreed to amend subsection I-5.2 to more accurately reflect that the risk of marine biotoxin accumulation in abalone varied between regions and therefore competent authorities should determine the need for biotoxin monitoring on the basis of a risk assessment which should be done according to the Working Principles for Risk Analysis for Food Safety for Application by Governments. In addition it was agreed that should a risk exist, mechanisms should be put in place for the edible part of the abalone to be consumed to meet the marine biotoxin levels in the Standard for Live and Raw Bivalve Molluscs. It was clarified that even though the levels in the Standard for Live and Raw Bivalve Molluscs were based on an FAO/IOC/WHO Expert Consultation which focused on biotoxins in bivalve molluscs, these would also be applicable to abalone. It was also agreed that the levels would be forwarded to the Committee on Contaminants in Foods (CCCF) for endorsement.

I-6 Hygiene and handling

128. A new subsection I-6.3 was added to indicate that the product should be free from foreign material that poses a threat to human health for consistency with other similar standards.

I-7.2 Content declaration

129. This section was amended to reflect that the product shall be labelled by weight, count, volume per package or count per unit weight for clarity.

I-7.4 Labelling of Non-retail Containers

130. This section was amended for consistency more with standards of a similar nature rather than with the Standard for Bivalve Molluscs as abalone did not pose the same risk as filter feeders as proposed in CX/FFP 11/31/12-Add.1. It was further agreed to insert the need for the scientific name to be included in the label and for the durability or shelf-life to be included if so required by the competent authority in the country of sale of the product.

I-8.1 Sampling

131. It was agreed to include reference to General Guidelines on Sampling (CAC/GL 50-2004) as a new (i), to replace in the renumbered (iii) “edible part” with “part to be consumed” and to delete the last sentence as more correct.

I-8.4 Determination of Biotoxins

132. Taking into account the decision on the work on the Proposed Draft Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins (Agenda Item 10), the Committee agreed to retain the method for saxitoxin as presented in the section and to include in square brackets reference to proposed criteria for reference and confirmatory methods for further discussion and decision at the next session.

I-9.1 Foreign Matter

133. The Committee did not agree with a proposal to include foreign matter on the shell as it was recognized that removal of any foreign matter from the shell would cause damage to the abalone.

I-9.2 Dead or Damaged Product

134. The second sentence was amended by replacing “they can no longer function biologically” with “their integrity is affected” as more appropriate. The last sentence was amended to more clearly illustrate when the sample was defective rather than when it was rejected as more appropriate for a definition.

I-10 Lot Acceptance

135. This section was amended to take into account the General Guidelines on Sampling and in alignment with other standards on fish and fishery products an AQL 6.5 was inserted in subsection (i) and (ii). It was agreed include all relevant sections to which the lot should comply in subsection (iv).

Part II**II-2.1 Product Definition**

136. The definition was amended to clarify the circumstances when abalone meat was generally shucked and to further align it with the title of the section. It was agreed to indicate that section II-5 did not apply to processed abalone meat that had the viscera and epithelium removed, but to retain this in square brackets until it could be verified that biotoxins were not relevant when the epithelium and viscera were removed.

II-2.2 Process Definition

137. It was agreed to stipulate the storage temperature of -18°C or colder in accordance with the Code of Practice for Fish and Fishery Products.

II-4 Food Additives

138. The use of antioxidants was agreed to and the section rearranged by deletion of the introductory sentence in II-4 and deletion of the title II-4.1 Antioxidants as a more appropriate format.

II-7.2 Content Declaration

139. In addition to alignment with I-7.2, it was also agreed to amend this section to more clearly define the net weight of frozen products.

II-7.3 Storage Instructions

140. This section was amended to specify that the conditions for storage and/or temperature to maintain the safety/quality of the product during transportation, storage and distribution including the minimum durability and date of shucking where required in the country of sale without indication of specific temperatures.

II-7.4 Labelling on Non-Retail Containers

141. Similar amendments were made to this section as in I-7.4.

II-8.3.1 Determination Net Weight

142. A new (i) was inserted to indicate that frost and ice from outside the package should be removed.

II-8.5.1 Procedures for Thawing

143. It was agreed to stipulate the temperature for thawing in a refrigerator and to retain thawing by immersion in water to provide flexibility.

II-9.3 Odour/Flavour

144. An insertion was made to include “other odours, flavours unfit for food” for completeness.

II-10 Lot Acceptance

145. This section was amended to align it with the amended section I-10.

Status of the Proposed Draft Standard for Fresh/Live and Frozen Abalone (*Haliotis spp.*)

146. The Committee agreed to forward the Proposed Draft Standard to the 34th Session of the Commission for adoption at Step 5 (Appendix X).

PROPOSED DRAFT AMENDMENT TO THE STANDARD FOR QUICK FROZEN FISH STICKS (NITROGEN FACTORS) (Agenda Item 12)¹⁶

147. The Committee recalled that its last Session had agreed to return the Proposed Draft Amendment of the Standard for Quick Frozen Fish Sticks (Fish Fingers), Fish Portions and Fish Fillets – Breaded or in Batter (CODEX STAN 166-1989) to Step 2/3 for redrafting by the Delegation of Thailand, with the assistance of Malaysia, New Zealand and other interested delegations, for comments and consideration at this Session.

148. The Delegation of Thailand introduced the detailed results of the study conducted in Thailand and Malaysia on Tilapia and proposed a nitrogen factor of 2.88 for Tilapia and that taking into account the high level of variation when analyzing for nitrogen and having noted the proposal of South Africa in their written comments (CX/FFP 11/31/12-Add.1), proposed that an allowance of $\pm 10\%$ should be made.

149. The Committee noted that the levels in the table were averages rather than minimum levels and agreed to include the nitrogen factor of 2.88 for Tilapia in the Table under a new header “Other species”.

150. The Committee had a further exchange of views on whether to include a note for an allowance of $\pm 10\%$. It was noted that nitrogen factors may vary according to a number of factors, such maturity of the fish, nutrition and the fishing ground, amongst others and could therefore be more than 10%. It was however clarified that the proposal for an allowance of $\pm 10\%$ was to serve as a trigger response to check the validity of the product.

151. In view of the above discussion and decisions, it was agreed to insert a note in the Table to allow for a variation of $\pm 10\%$; to amend the title of the table to *Average Nitrogen factors to be used for fish flesh used as raw material for the product* and to delete the row “white fish mean”.

152. The Committee further agreed to rearrange *Section 7.4 Estimation of Fish Content* to better clarify when to use different methods to determine fish content as proposed in CRD 4 and to replace (2) On-line method with “rapid method used during production”.

153. The Committee noted the view of one delegate that more work was needed to include tropical fish into existing standards on fish and fishery products and that further guidance was needed for nitrogen factors for other tropical fish used in the production of fish sticks.

154. On the proposal of the Delegation of South Africa to include a nitrogen factor of 2.65 for South Atlantic Hake, the Committee recalled its earlier decision that it was necessary to provide information on the data collected and methodology used in order to propose new nitrogen factors for discussion. The Delegation of South Africa was requested to provide this information for consideration by the next session of the Committee.

Status of the Proposed Draft Amendment to the Standard for Quick Frozen Fish Sticks

155. The Committee agreed to forward the amendment above to the Commission for adoption at Step 5/8 with the recommendation to omit Steps 6 & 7 (Appendix XI). The nitrogen factor for South Atlantic Hake was returned to Step 2/3 for redrafting, comments and consideration by the next session.

¹⁶ CX/FFP 11/31/12, CX/FFP 11/31/12-Add.1 (Comments of Philippines and South Africa), CRD 4 (comments of the USA), CRD 9 (comments of Mexico), CRD 10 (Comments of the EU) and CRD 22 (Comments of Nigeria).

PROPOSED FOOD ADDITIVE PROVISIONS IN STANDARDS FOR FISH AND FISHERY PRODUCTS (Agenda Item 13)¹⁷

156. The Committee recalled that its last session had agreed to establish an electronic working group led by the European Union and the United States of America to prepare proposals for food additives in the standards for fish and fishery products and to focus on the technological justification for those food additives and if necessary, propose changes to the GSFA.

157. The Delegation of the EU highlighted the main recommendations of the working group, including the proposal for a *Proposed Procedure for the Development and Review of Additive Provisions in Fish and Fishery Product Standards*, with the objective to maintain uniformity in developing additive provisions in line with the Codex Procedural Manual and the Preamble of the General Standard for Food Additives (GSFA), and other procedural matters relating to the coordination between commodity committees and the Committee on Food Additives (CCFA). It was also recommended to establish an in-session working group to consider several related questions on the approach to consideration of additives.

158. The Committee agreed to establish an in-session working group chaired by the European Union and the United States of America working in English, to consider the issues raised in CX/FFP 11/31/13 and to make proposals on the additives sections in the standards under development.

159. The Chair recalled that the initial mandate of the eWG was to review additive provisions and encouraged the in-session working group to use the recommendations on procedures to facilitate consideration of the additives sections for inclusion in the standards for discussion at the present session, with the understanding that work on existing standards would be considered at a later stage.

160. The Committee considered the report of the in-session working group as presented by the Delegation of the EU (CRD 30) and had a general discussion on the approach to the establishment of additive provisions.

161. The Committee considered the *Proposed Procedure for the Development and Review of Additive Provisions in Fish and Fishery Product Standards* presented in Appendix I to CRD 30. Several delegations supported the use of this procedure and pointed out that coordination should be improved between the CCFA and the CCFFP and more generally commodity committees, that commodity committees were responsible for determining the technological justification for the use of food additives while the CCFA considered food safety aspects, and was responsible for endorsement and subsequent integration of additive provisions into the GSFA. It was also noted that coordination at the national level was very important to ensure consistency of approach throughout Codex.

162. The Committee noted that if it wished to establish a new procedure, that might be a time consuming process and that all necessary elements to provide guidance on the selection of additives were already included in the Procedural Manual and the Preamble of the GSFA, and therefore the procedure should be considered rather as a summary or check list of the requirements to facilitate the selection of additives. It was agreed that Appendix I would be included in the working document on additives to be prepared for the next session, for ease of reference and to provide guidance for the selection of food additives.

163. The Committee agreed that the additives proposed for specific standards (Appendices 2 and 3) would be considered respectively under Agenda Items 3 and 4.

164. The Committee agreed to establish an electronic working group led by the European Union and the United States of America, working in English, with the following mandate: to review the food additive provisions in adopted standards, with the objective of aligning them with the GSFA and if necessary, propose changes to the GSFA, taking into account the “Proposed Procedure” outlined in Appendix I; review the additive section in the Draft Standard for Smoked Fish and prepare a revised section for circulation at Step 6 and finalization at the next session (see also Agenda item 4). It was

¹⁷ CX/FFP 11/31/13, CRD 10 (comments of EU), CRD 19 (comments of Norway), CRD 25 (comments of Viet Nam), CRD 30 (report of the in-session working group on food additives)

agreed that in the process, clear technological justification should be provided for the additives proposed.

Matters referred by CCFA

165. The Committee recalled that the last session of the CCFA had agreed to refer the food additive provisions, forwarded to the 34th Session of the Commission for adoption, to the appropriate active commodity committees for information and comments on their applicability to the relevant commodity standards (REP 11/FA, para. 70). The Committee welcomed this initiative in order to improve interaction between committees and made the following comments.

166. The Committee agreed to express its concern to the Commission concerning the provisions forwarded for adoption by the CCFA on food colours carotenes beta- (vegetable), 160a (ii) with Note 16: “For use in glaze, coatings or decorations for fruit, vegetables, meat or fish” in Food Category 9.1.1 “Fresh Fish”, as this may lead to cases where glazings with colours are used to falsify fresh fish and to mislead the consumer about the freshness of fish and fishery products.

MODEL CERTIFICATES (Agenda Item 14)¹⁸

167. The Committee recalled that its last session has considered the request from the 32nd Session of the Commission for the Committee to consider revision of the Model Certificate for Fish and Fishery Products to ensure consistency with adopted Generic Model Certificate¹⁹. At that session, the Committee had noted the need to limit the number of certificates used in international trade and had considered a proposal that the generic certificate be revised to include specifics related to fish and fishery products and to revoke the Model Certificate for Fish and Fishery Products. It was agreed to issue a circular letter requesting comments on this matter for further discussion at this session.

168. The Committee agreed to continue the objective to request revision of the Model Generic Certificate with the view to revoke the Model Certificate for Fish and Fishery Products. In view of this, it was agreed to request CCFICS to consider the following amendments to the Generic Certificate to take into account specific requirements for fish and fishery products:

- In the note to section 15 on species to require the specification of both common and/or scientific names of species as applicable; and
- To revise section 16 on attestations as covered by the Certificate for Fish and Fishery Products to facilitate discussions between importing and exporting countries. It was recalled that attestations in the Certificate for Fish and Fishery Products did not refer to the product itself, but rather to the fact that products should originate from an establishment that has been approved by a competent authority and that has a HACCP and sanitary program in accordance with Codex requirements.

169. The Committee did not agree to request replacement of “place of loading” with “places of loading” as it was clarified that the generic certificate covered several products nor with a proposal for the need to differentiate between wild and aquaculture product in the attestations as this was not covered in the certificate for fish and fishery products.

170. The Committee recalled that CCFICS had removed “sanitary” from the title of the Generic Certificate” and noted a proposal to allow countries to refer to “sanitary” certificate as this is commonly used by exporting and importing countries to clarify the purpose of the certificate.

171. The Committee agreed to request CCFICS to consider the amendments as proposed (Appendix XII). The Committee agreed not to consider revoking the Certificate for Fish and Fishery Products until the amendments to the generic certificate were adopted.

¹⁸ CL 2010/48-FFP, CX/FFP 11/31/14 (Comments of Argentina, Canada, Kenya, Peru and South Africa), CRD 6 (Comments of Japan), CRD 9 (Comments of Mexico), CRD 11 (Comments of Egypt), CRD 19 (Comments of Norway), CRD 16 (Comments of Ghana). CRD 20 (comments of EU).

¹⁹ Annex to the Guidelines for Design, Production, Issuance and Use of Generic Official Certificates (CAC/GL 38-2001).

OTHER BUSINESS AND FUTURE WORK (Agenda Item 15)**Discussion Paper on the Development of a Worldwide Standard for Laver Products²⁰**

172. The Delegation of the Republic of Korea briefly introduced the document, as presented in CX/FFP 11/31/15, and recalled that the proposal for new work for a regional standard for laver products was first considered at the 17th Session of the FAO/WHO Coordinating Committee for Asia (CCASIA) in 2010. CCASIA had agreed that a standard for laver products should be developed as a global standard in view of the significant amount of products exported outside the region and had recommended that the Republic of Korea submit the proposal for new work to the 31st session of CCFFP (REP11/ASIA, para. 144).

173. The Committee noted that it might be necessary to amend the terms of reference of the Committee to work on laver product as the current terms of reference did not cover the product.

174. Some delegations were of the view that due to the workload of the Committee and the fact that there appeared to be no clear food safety risk associated with the product, the Committee should not proceed with new work on laver products. These delegations proposed that CCASIA should develop this as a regional standard. Some other delegations supported to start new work on laver products, noting that these products were widely traded and consumed and that some food safety concerns, such as contamination of heavy metals, had been identified.

175. The Delegation of China did not support the development of the standard because China was not aware of any major problems in trade of laver products. The delegation further pointed out that due to the wide diversity of the products and different consumer preferences amongst countries, standardization of the product would be difficult.

176. The Committee noted that it was premature to consider an international standard for laver products and agreed not to start the new work at this time, but to encourage the CCASIA to develop a regional standard for laver products.

Proposal of New Work for a Code of Practice for Sturgeon Caviar²¹

177. The Delegation of Iran introduced the document, as presented in CRD 8, and highlighted the need develop of a code of practice for sturgeon caviar to provide additional guidance to support for compliance with the Standard for Sturgeon Caviar (CODEX STAN 291-2010).

178. The Committee agreed to the proposal for new work on a Code of Practice for Sturgeon Caviar for inclusion into the Code of Practice for Fish and Fishery Products and to submit a revised project document to the 34th Commission for approval. Subject to the approval of the Commission, an electronic working group, led by Iran and working in English, would prepare a proposed draft for circulation for comments at Step 3 and consideration at the next session.

DATE AND PLACE OF NEXT SESSION (Agenda Item 16)

179. The Committee was informed that its 32nd Session was tentatively scheduled to be held in Indonesia from 1 to 5 October 2012, the final arrangements being subject to confirmation by the Host Country, Co-host Country and the Codex Secretariat.

²⁰ CX/FFP 11/31/15

²¹ CRD 8 (Prepared by Iran)

SUMMARY STATUS OF WORK

Subject Matter	Step	Action by	Document Reference in REP 11/FFP
Amendment to the Preamble of Section 6, Aquaculture Products of the Code of Practice for Fish and Fishery Products	-	Governments 34 th CAC	para. 15, Appendix II
Draft Standard for Fish Sauce	8	Governments, 34 th CAC	para. 36, Appendix III.
Proposed Draft Code of Practice for Fish and Fishery Products (section on smoked fish and relevant definitions)	5/8	Governments, 34 th CAC	para. 70 Appendix V
Proposed Draft Amendment to Section 3.4.5.1 Water of the Code of Practice for Fish and Fishery Products	5/8	Governments, 34 th CAC	para. 75 Appendix VI
Proposed Draft Amendment to the Standard for Quick Frozen Fish Sticks	5/8	Governments 34 th CAC	para. 155 Appendix XI
Draft Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish	7	32 nd CCFPP	para. 62 Appendix IV
Proposed Draft Standard for Quick Frozen Scallop Adductor Muscle Meat	5	Governments, 34 th CAC 32 nd CCFPP	para.97 Appendix VII
Proposed Draft Standard for Fresh/Live and Frozen Abalone (<i>Haliotis</i> spp)	5	Governments 34 th CAC 32 nd CCFPP	para. 146 Appendix X
Food Additive Provisions in the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish	6	Electronic Working Group (EU and USA) Governments 32 nd CCFPP	paras 64 and 164
Proposed Draft Code of Practice on the Processing of Scallop Meat	3	Governments Physical Working Group (Canada) 32 nd CCFPP	paras 100-101 Appendix VIII
Proposed Draft Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins in the Standard for Live and Raw Bivalve Molluscs	3	Governments 32 nd CCFPP	para. 117 Appendix IX
Proposed Draft Revision of the Procedure for the Inclusion of Additional Species in Standards for Fish and Fishery Products	2/3	Electronic Working Group (Chile and France) Governments, 32 nd CCFPP	paras 108-109

Amendment to the Standard for Quick Frozen Fish Sticks (Nitrogen Factor for Atlantic Hake)	2/3	South Africa 32 nd CCFPP	para. 155
Proposed Draft Performance Criteria for screening methods for biotoxins in the Standard for Live and Raw Bivalve Molluscs	1/2/3	34 th CAC Electronic Working Group (Canada) 32 nd CCFPP	paras 119-121
Proposed Draft Code of Practice for Fish and Fishery Products (section on Sturgeon Caviar)	1/2/3	34 th CAC Electronic Working Group (Iran) 32 nd CCFPP	para. 178
Proposed Draft Code of Practice for Fish and Fishery Products (Other sections)	-	Governments 32 nd CCFPP	para. 72
Food Additive Provisions in Standards for Fish and Fishery Products (food additive provisions in adopted standards)	-	EWG led by EU and USA Governments 32 nd CCFPP	para. 164
Discussion Paper on Histamine	-	Electronic Working Group (Japan and USA) 32 nd CCFPP	paras 39-40
Discussion Paper on a Code of Practice for Fish Sauce	-	Delegation of Thailand and Viet Nam 32 nd CCFPP	para. 42

APPENDIX I

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APPENDIX II

**PROPOSED DRAFT AMENDMENT OF SECTION 6 OF THE CODE OF PRACTICE FOR
FISH AND FISHERY PRODUCTS
(CAC/RCP 52-2003)**

(First three sentences of the second paragraph in the Preamble should be replaced with following:)

Fish farms should operate effective fish health management practices, to maintain fish free of disease to the extent possible. Fish should be routinely monitored for disease using, where applicable, the methods described in the *OIE Manual of Diagnostic Tests for Aquatic Animals*.

APPENDIX III**DRAFT STANDARD FOR FISH SAUCE****(At Step 8 of the Procedure)****1. SCOPE**

This standard applies to fish sauce produced by means of fermentation by mixing fish and salt and may include other ingredients added to assist the fermentation process. The product is intended for direct consumption as a seasoning, or condiment or ingredient for food. This standard does not apply to fish sauce produced by acid hydrolysis.

2. DESCRIPTION**2.1 PRODUCT DEFINITION**

Fish sauce is a translucent, not turbid liquid product with a salty taste and fish flavour obtained from fermentation of a mixture of fish and salt.

2.2 PROCESS DEFINITION

The product is prepared by mixing fish with salt and is fermented in covered containers or tanks. Generally, the fermentation process takes not less than 6 months.

Succeeding extractions may follow by adding brine to further the fermentation process in order to extract the remaining protein, fish flavour and odour. Other ingredients may be added to assist the fermentation process.

2.3 PRESENTATION

Any presentation of the product shall be permitted provided that it meets all requirements of this standard; and is adequately described on the label to avoid confusing or misleading the consumer.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS**3.1. Raw material****3.1.1 Fish**

Fish sauce shall be prepared from sound and wholesome fish or parts of fish in a condition fit to be sold fresh for human consumption.

3.1.2 Salt

Salt used shall be of food grade quality and conform to the Codex Standard for Food Grade Salt (CODEX STAN 150-1985).

3.1.3 Water

Water for preparing brine shall be potable.

3.2 Other ingredients

All other ingredients used shall be of food grade quality and conform to all applicable Codex standards.

3.3 Quality criteria

3.3.1 Organoleptic criteria shall be acceptable in terms of appearance, odour and taste as follows:

Appearance

Fish sauce must be translucent, not turbid and free from sediments except salt crystals.

Odour and taste

Fish sauce shall have odour and taste characteristic of the product.

3.3.2 Foreign matter

This product shall be free from foreign matter.

3.4 Chemical properties

- Total nitrogen content: not be less than 10 g/l. Competent authorities may also specify a lower level of total nitrogen if it is the preference of that country.

- Amino acid nitrogen content: not less than 40% of total nitrogen content.

- pH: between 5.0 - 6.5 typical for a traditional product; but not lower than 4.5 if ingredients are used to assist fermentation.

- Salt: not less than 200g/l, calculated as NaCl.

3.5 Final product

The product shall meet the requirements of this standard when lots examined in accordance with Section 11 comply with the provisions set out in Section 10. The products shall be examined by the methods given in Section 9. The packaging for the final product shall be free from any integrity defects, such as cracks, leakage, or loose pieces of the packaging units.

4. FOOD ADDITIVES

Only those food additive classes listed below are technologically justified and may be used in products covered by this Standard. Within each additive class only those food additives listed below, or referred to, may be used and only for the functions, and within limits, specified.

Functional Class	INS No.	Additive	Maximum level
Acidity regulators	334; 335(i), (ii); 336(i), (ii); 337	Tartrates	GMP
	330, 331 (i), (iii) 332 (i), (ii)	Citrates	GMP
	296, 350 (i), (ii) 351 (i), (ii) 352 (ii)	Malates	GMP
	300	Ascorbic acid	GMP
	325	Sodium lactate	GMP
	260	Acetic acid	GMP
Flavour enhancers	621	Monosodium glutamate	GMP
	630	Inosinic acid	GMP
	631	Disodium Inosine 5' monophosphate	GMP
	627	Disodium 5' guanylate	GMP
Sweeteners	950	Acesulfame K	1,000 mg/kg
	955	Sucralose	450 mg/kg
	951	Aspartame	350 mg/kg
Colours	150c	Caramel III-Ammonia caramel	50,000 mg/kg
Emulsifiers and Stabilizers	466, 468	Carboxymethyl cellulose and crosslinked carboxymethyl cellulose	GMP
Preservatives	210-203	Benzoates	1,000 mg/kg
	200-213	Sorbates	1,000 mg/kg

5. CONTAMINANTS

5.1 The products covered by this Standard shall comply with the Maximum Levels of the Codex General Standard for Contaminants and Toxins in Foods and Feed (CODEX STAN 193-1995).

5.2 Raw material fish for fish sauce shall not contain marine biotoxins (e.g. Ciguatoxin, Tetrodotoxin and PSP) in amounts which could present a risk to human health.

5.3 Product made using aquaculture fish shall comply with the maximum residue limits for veterinary drugs established by the CAC.

6. HYGIENE AND HANDLING

6.1 The final product shall be free from any foreign material that poses a threat to human health.

6.2 It is recommended that the products covered by provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice-General Principle of Food Hygiene (CAC/RCP 1-1969), Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.3 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

6.4 The product shall not contain more than 40 mg histamine /100g of fish sauce in any sample unit tested.

7. WEIGHTS AND MEASURES

7.1 Fill of Containers

7.1.1 Minimum Fill

(a) The container should be well filled with fish sauce, which should occupy not less than 90% (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20° C which the sealed container will hold when completely filled.

(b) Flexible containers should be filled as full as commercially practicable.

7.1.2 Classification of “Defectives”

A container that fails to meet the requirement for minimum fill of section 7.1.1 should be considered as a “defective”.

7.1.3 Lot acceptance

A lot shall be considered as meeting the requirement of section 7.1.1 when the number of “defectives” as defined in Section 7.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL 6.5. In addition, the average net weight or net volume shall be equal or greater than the declared net weight or net volume.

8. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

8.1 Name of the product

The name of the product shall be “fish sauce” or other names, in accordance with the law and custom of the country in which the product is sold, and in a manner not to mislead the consumer. The name of the product may be preceded or followed by the common or usual name of the fish.

8.2 Labelling of non-retail containers

Information on the above provisions shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer or packer, as well as storage instructions shall appear on the container. However, lot identification, and the name and address of the manufacturer or packer may be replaced by an identification mark provided that such a mark is clearly identified with the accompanying document.

8.3 Labelling of Nitrogen Content

Competent authorities may require that total nitrogen (refer to 3.4) be declared on the fish sauce label in g/l. Competent authorities may also require descriptors that reflect the total nitrogen level as an indicator of quality of the fish sauce.

9. SAMPLING, EXAMINATION AND ANALYSIS

9.1 Sampling of lots for examination of the final product shall be in accordance with the Codex General Guidelines on Sampling (CAC/GL 50-2004). A sample unit is the individually packed product (bottle) or a 1l portion from bulk containers.

9.2 Sensory and Physical Examination Samples taken for sensory and physical examination shall be assessed by persons trained in such examination in accordance with the Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31-1999) as follows:

- Complete external packaging unit examination for the presence of any integrity defects, particularly cracks or leakage or loose pieces of the packaging units.
- Examination of the product for translucence and foreign matter.
- Evaluation of odour and taste.

9.3 Test methods for chemical properties

9.3.1 Determination of total nitrogen: AOAC 940.25

9.3.2 Determination of amino acid nitrogen by determining formaldehyde nitrogen (AOAC 2.066) and subtracting by ammoniacal nitrogen (AOAC 2.065)

9.3.3 Total nitrogen: AOAC 940.25

9.3.4 Determination of pH: AOAC 981.12 (Codex general method). The pH shall be measured in a sample of fish sauce diluted with water to 1:10 using a pH meter. The dilution of fish sauce is necessary because of the high ionic strength in the undiluted sauce.

9.3.5 Determination of sodium chloride: FAO 1981, Technical Paper 219 AOAC 937.13 or 976.18 or 976.19.

9.3.6 Determination of Histamine: See AOAC 977.13 or other scientifically equivalent validated method.

10. DEFINITION OF DEFECTIVES

The sample unit shall be considered as defective when it exhibits any of the properties defined below.

10.1 Foreign Matter

The presence in the sample unit of any matter which has not been derived from salt and fish, does not pose a threat to human health and is readily recognized without magnification or is present at a level determined by any method including magnification, that indicates non-compliance with good manufacturing and sanitation practices.

10.2 Appearance

The presence of any sediments (except NaCl crystals) and/or cloudiness.

10.3 Odour

A sample unit affected by distinct objectionable odour, e.g. rotten, putrid, rancid, gamey, pungent etc.

10.4 Taste

A sample unit affected by distinct objectionable taste, e.g. bitter, sour, metallic, taint, etc.

11. LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

- (i) the total number of defective sample units as classified according to Section 10 does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5).
- (ii) the essential composition and quality factors, food additives, contaminants, hygiene and handling and labelling requirements of Sections 3, 4, 5, 6 and 8 are met.

APPENDIX IV

DRAFT STANDARD FOR SMOKED FISH, SMOKE-FLAVOURED FISH AND SMOKE-DRIED FISH**(At Step 7 of the Procedure)****1. SCOPE**

This standard applies to smoked, smoke-flavoured and smoke-dried fish prepared from fresh, chilled or frozen raw material. It deals with whole fish, fillets and sliced and similar products thereof. The standard applies to fish, either for direct consumption, for further processing, or for addition into speciality or minced products where fish constitutes only part of the edible contents.

It does not apply to fish treated with carbon monoxide (filtered, “clear” or ‘tasteless’ smoke), fish packaged in hermetically sealed containers processed to commercial sterility. Speciality or minced products as such are not included (e.g. fish-salads).

2. DESCRIPTION

Product and process definitions for smoked fish, smoke-flavoured fish and smoke-dried fish are considered separately under this section.

2.1 SMOKED FISH**2.1.1 Product definition**

Smoked fish is prepared from fish that has undergone a hot or cold smoking process. The smoke must be applied through one of the smoking processes defined in 2.1.2 and the end product must have smoked sensory characteristics.

2.1.2 Process definitions

- **“Smoking”** is a process of treating fish by exposing it to smoke from smouldering wood or plant materials. This process is usually characterised by an integrated combination of salting, drying, heating and smoking steps in a smoking chamber.
- **“Smoking by regenerated smoke”** is a process of treating fish by exposing it to smoke which is regenerated by atomizing smoke condensate in a smoking chamber under the time and temperature conditions similar to those for hot or cold smoking.
- **“Smoke Condensates”** are products obtained by controlled thermal degradation of wood in a limited supply of oxygen (pyrolysis), subsequent condensation of the resultant smoke vapours, and fractionation of the resulting liquid products..
- **“Hot smoking”** is a process in which fish is smoked at an appropriate combination of temperature and time sufficient to cause the complete coagulation of the proteins in the fish flesh. Hot smoking is generally sufficient to kill parasites, to destroy non-sporulated bacterial pathogens and to injure spores of human health concern.
- **“Cold smoking”** is a process of treating fish with smoke using a time/temperature combination that will not cause significant coagulation of the proteins in the fish flesh but that will cause some reduction of the water activity.
- **“Salting”** is a process of treating fish with salt of food grade quality to lower water activity in fish flesh and to enhance flavour by any appropriate salting technology (e.g. dry salting, brining, injection salting).
- **“Drying”** is a process in which the moisture content in the fish is decreased to appropriate required characteristics under controlled hygienic conditions.

- **“Packaging”** is a process in which smoked fish is put in a container, either aerobically or under reduced oxygen conditions, including under vacuum or in a modified atmosphere.
- **“Storage”** is a process in which smoked fish is kept refrigerated or frozen to assure product quality and safety in conformity with Sections 3 and 6.

2.2 SMOKE-FLAVOURED FISH

2.2.1 Product definition

Smoke-flavoured fish is prepared from fish that has been treated with smoke flavours, without undergoing a smoking process as described in 2.1. The end product must have a smoked taste.

2.2.2 Process definition

- **“Smoke flavours”** are either smoke condensates or artificial flavour blends prepared by mixing chemically-defined substances in known amounts or any combination of both (smoke-preparations).
- **“Smoke flavouring”** is a process in which fish or fish preparations are treated with smoke flavour. The smoke flavour can be applied by any technology (e.g. dipping, spraying, injecting, soaking).
- **“Smoke Condensates”** are products obtained by controlled thermal degradation of wood in a limited supply of oxygen (pyrolysis), subsequent condensation of the resultant smoke vapours, and fractionation of the resulting liquid products.
- **“Packaging”** is a process in which smoke-flavoured fish is put in a container, either aerobically or under reduced oxygen conditions, including under vacuum or in a modified atmosphere.
- **“Storage”** is a process in which smoke-flavoured fish is kept refrigerated or frozen to assure product quality and safety in conformity with Sections 3 and 6.
- **“Drying”** is a process in which the moisture content in the fish is decreased to appropriate required characteristics under controlled hygienic conditions.
- **“Salting”** is a process of treating fish with salt of food grade quality to lower water activity in fish flesh and to enhance flavour by any appropriate salting technology (e.g. dry salting, brining, injection salting).

2.3 SMOKE-DRIED FISH

2.3.1 Product definition

Smoke-dried fish is prepared from fish that has undergone a combined smoking and drying process and may include a salting process. The smoke must be applied through a smoke-drying process traditional for the respective country or an industrial smoke-drying process and the end product must have smoke-dried sensory characteristics.

2.3.2 Process definition

- **“Smoke drying”** is a process in which fish is treated by combined smoking and drying steps to such an extent that the final product can be stored and transported without refrigeration and to achieve a water activity of 0.75 or less (10% moisture content or less), as necessary to control bacterial pathogens and fungal spoilage.
- **“Drying”** is a process in which the moisture content in the fish is decreased to appropriate required characteristics under controlled hygienic conditions.
- **“Salting”** is a process of treating fish with salt of food grade quality to lower water activity in fish flesh and to enhance flavour by any appropriate salting technology (e.g. dry salting, brining, injection salting).
- **“Packaging”** is a process in which smoke-dried fish is put in a container to avoid contamination and prevent rehydration.

- **“Storage”** is a process in which smoke-dried fish is typically kept at ambient temperature in a way to assure its safety and quality in conformity with Sections 3 and 6.

2.4 Presentation

Any presentation of the product shall be permitted provided that it meets all requirements of this Standard, and it is adequately described on the label to avoid confusing or misleading the consumer.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 The raw material

Smoked fish, smoke-flavoured fish and smoke-dried fish shall be prepared from sound and wholesome fish, which may be fresh, chilled or frozen, and of a quality to be sold for human consumption after appropriate preparation.

3.2 Ingredients

All ingredients used shall be of food grade quality and conform to all applicable Codex standards.

3.3 Wood or other plant material for generation of smoke

Wood or other plant material used for the generation of smoke or smoke-condensates must not contain toxic substances either naturally or through contamination, or after having been treated with chemicals, paint or impregnating materials. In addition, wood or other plant material must be handled in a way to avoid contamination (refer to the Code of Practice for the Reduction of Contamination of Food with Polycyclic Aromatic Hydrocarbons (PAH) from Smoking and Direct Drying Processes (CAC/RCP 68-2009)).

3.4 Decomposition

The product of susceptible species shall not contain more than 10 mg of histamine per 100g fish flesh based on the average of the sample unit tested and all products in this Standard shall be free from persistent and objectionable odours and flavours characteristic of decomposition

3.5 Final product

Products shall meet the requirements of this Standard when lots examined in accordance with section 10, comply with the provisions set out in section 9. Products shall be examined by the methods given in section 8.

4. FOOD ADDITIVES

To be elaborated.

5. CONTAMINANTS

5.1 General provisions

The products covered by this Standard shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Foods and Feed (CODEX STAN 193-1995).

5.2. Polycyclic Aromatic Hydrocarbons (PAH)

Smoking of fish should be done in a manner that minimises the formation of polycyclic aromatic hydrocarbons (PAH). This can be achieved by following the Code of Practice for the Reduction of Contamination of Food with Polycyclic Hydrocarbons (PAH) from Smoking and Direct Drying Processes (CAC/RCP 68-2009).

6. HYGIENE AND HANDLING

6.1 General provisions

The products covered by the provisions of this Standard shall be prepared and handled in accordance with the appropriate sections of the recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969) and other relevant Codex texts such as codes of practice and

codes of hygienic practice, such as the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003).

6.2 Microbiological criteria

The products shall comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria in Foods (CAC/GL 21-1997).

6.3 Parasites

Products covered by this Standard shall not contain living parasites and particular attention needs to be paid to cold smoked or smoke-flavoured products, which should be frozen before or after smoking if a parasite hazard is present (see Annex 1). Viability of nematodes, cestodes and trematodes shall be examined according to Section 8.10 and/or 8.11.

6.4 *Listeria monocytogenes*

The ready to eat products shall comply with microbiological criteria for *Listeria monocytogenes* in ready-to-eat foods which was elaborated in the Annex II of the Guidelines on the Application of General Principles of Food Hygiene to the Control of *Listeria monocytogenes* in Ready to Eat Foods (CAC/GL 61-2007).

6.5 *Clostridium botulinum*

Toxins of *Clostridium botulinum* are not allowed in smoked fish, smoke-flavoured fish and smoke-dried fish products. The formation of *Clostridium botulinum* toxin can be controlled through an application of a combination of science-based options such as packaging type, storage temperature, and water activity, e.g. by use of salt in the water phase. Examples are shown in the Table in Annex 2, which addresses these control options.

Countries where the products are to be consumed may allow these products in an uneviscerated state or may require evisceration, either before or after processing, in such a way as to minimise the risk of *Clostridium botulinum*.

6.6 Histamine

The product shall not contain histamine that exceeds 20 mg/100g fish flesh in any sample unit tested. This applies only to susceptible species (e.g. *Scombridae*, *Clupeidae*, *Engraulidae*, *Coryphaenidae*, *Pomatomidae*, *Scomberesocidae*).

6.7 Other Substances

The products shall not contain any other substance in amounts, which may present a hazard to health in accordance with standards established by the Codex Alimentarius Commission, and the final product shall be free from any foreign material that poses a threat to human health.

7. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply.

7.1 Name of the Food

The name of the food must be “smoked X” if treated by the processes described in paragraph 2.1, “smoke flavoured X” if treated by the processes described in paragraph 2.2, “smoke-dried X” if treated by the processes described in paragraph 2.3, X being the common or commercial name of the species of fish used in accordance with the law or customs of the country in which the food is sold, so as not to mislead the consumer.

7.2 Additional labelling

Countries where the product is sold can determine whether the use of regenerated smoke must be indicated on the label.

7.3 Storage and Handling Instructions

The label shall declare storage and handling instructions appropriate for the product.

7.4 Labelling of Non-retail Containers

Information specified above shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer or packer, as well as storage instructions, shall appear on the container.

However, the name and address of the manufacturer or packer may be replaced by an identification mark (e.g. plant approval number) provided that such a mark is clearly identifiable with the accompanying documents.

8. SAMPLING, EXAMINATION AND ANALYSIS

8.1 Sampling

Sampling of lots for examination of the product shall be in accordance with the General Guidelines on Sampling (CAC/GL 50-2004).

A sample unit is the individually packed product or a 1 kg portion from bulk containers.

The number of samples to be taken for the determination of the levels of histamine in a lot shall be determined by the Competent Authority having jurisdiction.

8.2 Sensory and Physical Examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Sections 8.4 through 8.6 and the Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31-1999)."

8.3 Determination of Histamine

AOAC 977.13 or other scientifically equivalent validated method.

8.4 Determination of Net Weight

The net weight is determined as the weight of the product, exclusive of packaging material, interleaving material, etc.

8.5 Temperatures for Thawing

Frozen samples of final products shall be thawed at refrigeration temperatures to maintain quality and safety.

8.6 Determination of *Listeria monocytogenes*

The microbiological criteria for products in which growth of *L. monocytogenes* will not occur are based on the use of the ISO 11290-2 method. Other methods that provide equivalent sensitivity, reproducibility, and reliability can be employed if they have been appropriately validated (e.g. based on ISO 16140). The microbiological criteria for products in which growth of *L. monocytogenes* can occur are based on the use of ISO 11290-1 method. Other methods that provide equivalent sensitivity, reproducibility, and reliability can be employed if they have been appropriately validated (e.g. based on ISO 16140).

8.7 Determination of *Clostridium botulinum*

AOAC 977.26 for the detection of *C. botulinum* and its toxins in foods or other scientifically equivalent validated method. This method is not routinely performed on the product, but may be used when there is a suspicion of the presence of toxins.

8.8 Determination of water phase salt

The percentage salt (NaCl) in the aqueous phase can be determined by the following calculation:

$$\% \text{ salt aqueous} = \frac{\% \text{ salt} \times 100}{\% \text{ water} + \% \text{ salt}}$$

phase

% Moisture: AOAC, 952.08, Sec. 35.1.13, *Solids (Total) in Seafood*

% Salt: AOAC, 937.09, Sec. 35.1.18, *Salt (Sodium Chloride) in Seafood*

8.9 Determination of water activity

Water activity measurement is performed with a water activity meter that is properly calibrated with reference standards, and operated and maintained in accordance with the manufacturer's instructions.

8.10 Determination of the viability of parasites

Methods used for extracting and testing the viability of parasites could include the method set out in Annex I for nematodes in the Standard for Salted Herring and Sprats (Codex STAN 244-2004) or other validated methods for parasites acceptable to the competent authority having jurisdiction.

8.11 Determination of visible Parasites

The entire sample unit is examined for the presence of parasites non-destructively by placing appropriate portions of the thawed (if necessary) sample unit on a 5 mm thick acryl sheet with 45% translucency and candled with a light source giving 1500 lux 30 cm above the sheet.

9. DEFINITION OF DEFECTIVES

A sample unit shall be considered as defective when it exhibits any of the properties defined below.

9.1 Foreign Matter

The presence in the sample unit of any matter, which has not been derived from the fish, does not pose a threat to human health, and is readily recognised without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing practice.

9.2 Parasites

The presence of two or more visible parasites per kg of the sample unit detected by the method described in 8.11 with a capsular diameter greater than 3 mm or a parasite not encapsulated and greater than 10 mm in length.

9.3 Odour, Flavour and Texture

A sample unit affected by persistent and distinct objectionable odours, flavours, or textures indicative of decomposition, or rancidity, burning sensation or other sensorial impressions not characteristic of the product.

10. LOT ACCEPTANCE

A lot will be considered as meeting the requirements of this standard when:

(i) The total number of defectives as classified according to Section 9 does not exceed the acceptance number (c) of an appropriate sampling plan (AQL-6.5) in the Codex General Guidelines on Sampling (CAC/GL 50-2004);

(ii) The average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any container and no individual container is less than 95% of the declared weight; and

(iii) The essential composition and quality factors, food additives, contaminants, hygiene and handling and labelling requirements of Sections 3, 4, 5, 6 and 7 are met. For histamine no sample unit shall exceed 20 mg/100g of fish flesh as per the sampling plan chosen. (Refer to Section 8.3).

ANNEX 1

Procedures sufficient to kill parasites

A method that is acceptable to the competent authority having jurisdiction shall be used to kill parasites.

Where freezing is required to kill parasites (i.e. cold smoked fish and smoke-flavoured fish) the fish must be frozen either before or after processing to a temperature time combination sufficient to kill the living parasites.

Examples of freezing processes that may be sufficient to kill some or all parasites are:

- Freezing at -20°C at the thermal centre of the product for 24 hours (for *Anisakis* species and *Pseudoterranova decipiens* only)¹;
- Freezing at -35°C at the thermal centre of the product for 15 hours (all parasites)²⁻⁵;
- Freezing at -20°C at the thermal centre of the product for 168 hours (7 days)²⁻⁵ (all parasites).

References:

1 FAO Fisheries Technical Paper 444 (Assessment and management of seafood safety and quality, 2004)

2 Bier, J. 1976. Experimental Anisakiasis: Cultivation and Temperature Tolerance Determinations. J. Milk Food Technol. 39:132-137.

3 Deardoff, T.L. et al. 1984. Behavior and Viability of Third-Stage Larvae of *Terranova* sp. (Type HA) and *Anisakis simplex* (Type I) Under Coolant Conditions. J. of Food Prot. 47:49-52.

4 Health and Welfare Canada (1992) (in consultation with Canadian Restaurant and Food Service Association, Fisheries Council of Canada, and Fisheries and Oceans Canada). Code of practice for the preparation of raw, marinated, and partially cooked fin fish.

5 USFDA - Centre for Food Safety & Applied Nutrition (June 2001), Fish and Fisheries Products Hazards and Controls Guidance, Chapter 5 Parasites, 3rd Edition.

ANNEX 2

Examples of combinations of product attributes that minimise the likelihood of *Clostridium botulinum* toxin formation

Countries where the products are to be consumed can be expected to make their science-based risk management choices with the assistance of this framework, e.g. select some options and exclude others, based on conditions within the country (e.g. nature and enforcement of refrigeration and shelf life controls; transportation times and conditions; variability in amount of salt in the aqueous phase that could occur despite best efforts to achieve a required percentage, etc.). This table applies to smoked fish and smoke-flavoured fish where the smoke flavour is provided by smoke condensates. If the smoke flavour is imparted by artificial flavour blends, then 5% aqueous phase salt would be required in order to provide complete protection at temperatures between 3°C and 10°C, or 10% aqueous phase salt would be required at any temperature over 10°C. This table does not apply to smoke-dried fish because the required water activity of 0.75 or below (moisture content level of 10% or less) inhibits the growth of all foodborne pathogens so that refrigeration is not required.

As an alternative to aqueous phase salt, certain time/temperature parameters can minimise the likelihood that *C. botulinum* will grow in the product. *C. botulinum* cannot grow and produce toxin at or below 3°C or below a water activity of 0.94. Other time/temperature combinations exist that similarly control the formation of toxin.¹ Where enforcement of shelf life as well as consumer acceptance of shelf life are norms, the country may select a system that relies on the combination of existing storage temperature conditions (i.e. during transport, retail storage, and consumer storage) and shelf life limitations.

¹ Skinner, G.E. and Larkin, J.W. (1998) Conservative prediction of time to *Clostridium botulinum* toxin formation for use with time-temperature indicators to ensure the safety of foods. (*Journal of Food Protection* 61, 1154-1160)

Temperature-abuse has a direct impact on the safety and shelf-life of the products. Time/temperature integrators may be a useful tool to determine if the products have been temperature-abused.

Product Temperature During Storage	Packaging	Aqueous Phase Salt (NaCl)	Comments
Below 3°C	Any packaging	Not applicable.	<i>C. botulinum</i> toxin cannot form below 3° C. Temperature monitoring is needed to ensure that the temperature does not exceed 3°C.
≥3°C to 5°C	Aerobically Packaged	No minimum water activity is needed. Nonetheless, where there is a possibility of severe time/temperature abuse, the country where the product is being consumed might choose an aqueous phase salt barrier of at least 3% to 3.5% (w/w) as an additional barrier.	When these products are packaged aerobically, 5°C is the maximum recommended storage temperature for the control of pathogens generally and for quality. The aerobic packaging does not necessarily prevent growth and toxin formation of <i>C. botulinum</i> . In air-packaged products, aerobic spoilage organisms provide sensory signs of spoilage before the formation of toxin by <i>C. botulinum</i> . In addition in air packaging it is possible for anaerobic micro-environments to exist and toxin may form if the product is subject to severe time/temperature abuse. For that reason, the country where the product is consumed should still require aqueous phase salt as a barrier to growth of non-proteolytic strains of <i>C. botulinum</i> if there are concerns about the ability of transporters, retailers or consumers to maintain time/temperature control.
Frozen (< or = -18°C)	Any packaging	Not applicable.	<i>C. botulinum</i> toxin cannot form when product is frozen. In the absence of adequate aqueous phase salt, toxin production can occur after thawing so, labelling information about the need for the consumer to keep the product frozen, to thaw it under refrigeration, and to use it immediately after thawing, is important.
(≥3°C to 5°C)	Reduced Oxygen (including vacuum packaging + modified atmosphere packaging)	Aqueous phase salt at minimum level of between 3% & 3.5% (w/w) may be selected by the country where the product is to be consumed.	Aqueous phase salt at a minimum level of between 3 and 3.5% (w/w) (aqueous phase salt) in combination with refrigeration will significantly delay (or prevent) toxin formation. For that reason, the country where the product is consumed should still require the higher aqueous phase salt as a barrier to growth of non-proteolytic strains of <i>C. botulinum</i> if there are concerns about temperature abuse of the product.

APPENDIX V

PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS
(SECTION ON SMOKED FISH)
(at Step 5/8 of the Procedure)

DEFINITIONS**2.9 SMOKED FISH, SMOKE-FLAVOURED FISH, SMOKE-DRIED FISH**

- **“Smoking”** is a process of treating fish by exposing it to smoke from smouldering wood or plant materials. This process is usually characterised by an integrated combination of salting, drying, heating and smoking steps in a smoking chamber.
- **“Smoking by regenerated smoke”** is a process of treating fish by exposing it to smoke which is regenerated by atomizing smoke condensate in a smoking chamber under the time and temperature conditions similar to those for hot or cold smoking.
- **“Smoke drying”** is a process in which fish is treated by combined smoking and drying steps to such an extent that the final product can be stored and transported without refrigeration and to achieve a water activity of 0.75 or less (10% of moisture or less), as necessary to control bacteria pathogen or fungal spoilage.
- **“Drying”** is a process in which the moisture content in the fish is decreased to appropriate required characteristics under controlled hygienic conditions.
- **“Hot smoking”** is a process in which fish is smoked at an appropriate combination of temperature and time sufficient to cause the complete coagulation of the proteins in the fish flesh. Hot smoking is generally sufficient to kill parasites, to destroy non-sporulated bacterial pathogens and to injure spores of human health concern.
- **“Cold smoking”** is a process of treating fish with smoke using a time/temperature combination that will not cause significant coagulation of the proteins in the fish flesh but that will cause some reduction of the water activity.
- **“Smoke Condensates”** are products obtained by controlled thermal degradation of wood in a limited supply of oxygen (pyrolysis), subsequent condensation of the resultant smoke vapours, and fractionation of the resulting liquid products.
- **“Smoke flavours”** are either smoke condensates or artificial flavour blends prepared by mixing chemically-defined substances in known amounts or any combination of both (smoke-preparations).
- **“Smoke flavouring”** is a process in which fish or fish preparations are treated with smoke flavour. The smoke flavour can be applied by any technology (e.g. dipping, spraying, injecting, soaking).
- **“Salting”** is a process of treating fish with salt of food grade quality to lower water activity in fish flesh and to enhance flavour by any appropriate salting technology (e.g. dry salting, brining, injection salting).
- **“Packaging”** of smoked fish or smoke flavoured fish is a process in which smoked fish or smoke-flavoured fish is put in a container, either aerobically or under reduced oxygen conditions, including under vacuum or in a modified atmosphere.
- **“Packaging”** of smoke-dried fish is a process in which smoke-dried fish is put in a container to avoid contamination and prevent rehydration.

- **“Storage”** is a process in which products covered by this Code are kept under conditions to assure their safety and quality in conformity with Sections 3 and 6 of the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish¹.

SECTION 12.1 - PROCESSING OF SMOKED FISH

This section provides examples of potential hazards and defects and describes technological guidance, which can be used to develop control measures and corrective actions. At a particular step only the hazards and defects, which are likely to be introduced or controlled at that step, are listed. It should be recognised that in preparing a HACCP and/or DAP plan it is essential to consult Section 5 which provides guidance for the application of the principles of HACCP and DAP analysis. However, within the scope of this Code of Practice it is not possible to give details of critical limits, monitoring, record keeping and verification for each of the steps since these are specific to particular hazards and defects.

Smoking of fish and dried smoking of fish have a long tradition as preservation methods for fish. As such experience regarding the potential hazards has been gained over the time. New technologies of smoking and smoke-flavouring of fish and storage of smoked products and smoke-flavoured products under refrigerated and frozen conditions have altered the barriers to growth of bacteria. This includes the use of MAP and vacuum packing.

Whilst new technologies have been developed for the production of smoke-dried products, the low water activity of the end products has not altered the product stability and safety during storage.

The pre-requisite programme described in Section 3 applies as well as the general considerations for the handling of fresh fish in Section 4, and the description of HACCP and DAP analysis in Section 5.

The recommendations made for the production of fresh fishery products in Section 8 are valid for the preparation of fish used as raw material for the production of fish products covered by this section.

If raw material likely to contain viable parasites is to be used steps must be taken to eliminate this hazard during processing steps, e.g. freezing, heating or salting the product. Alternatively, the final product should be treated in a way to kill parasites (see Annex I of the Standard on Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish¹).

The topics to be dealt with in this chapter will be those covering the special features of the smoked products, smoked-flavoured products and smoke-dried products as well as the handling of these products. Where the process, packaging or storage conditions of the product are not described in this Code, the operator should endeavour to scientifically validate the safety of such a process, packaging or storage of the product so as to eliminate further hazards to the consumer.

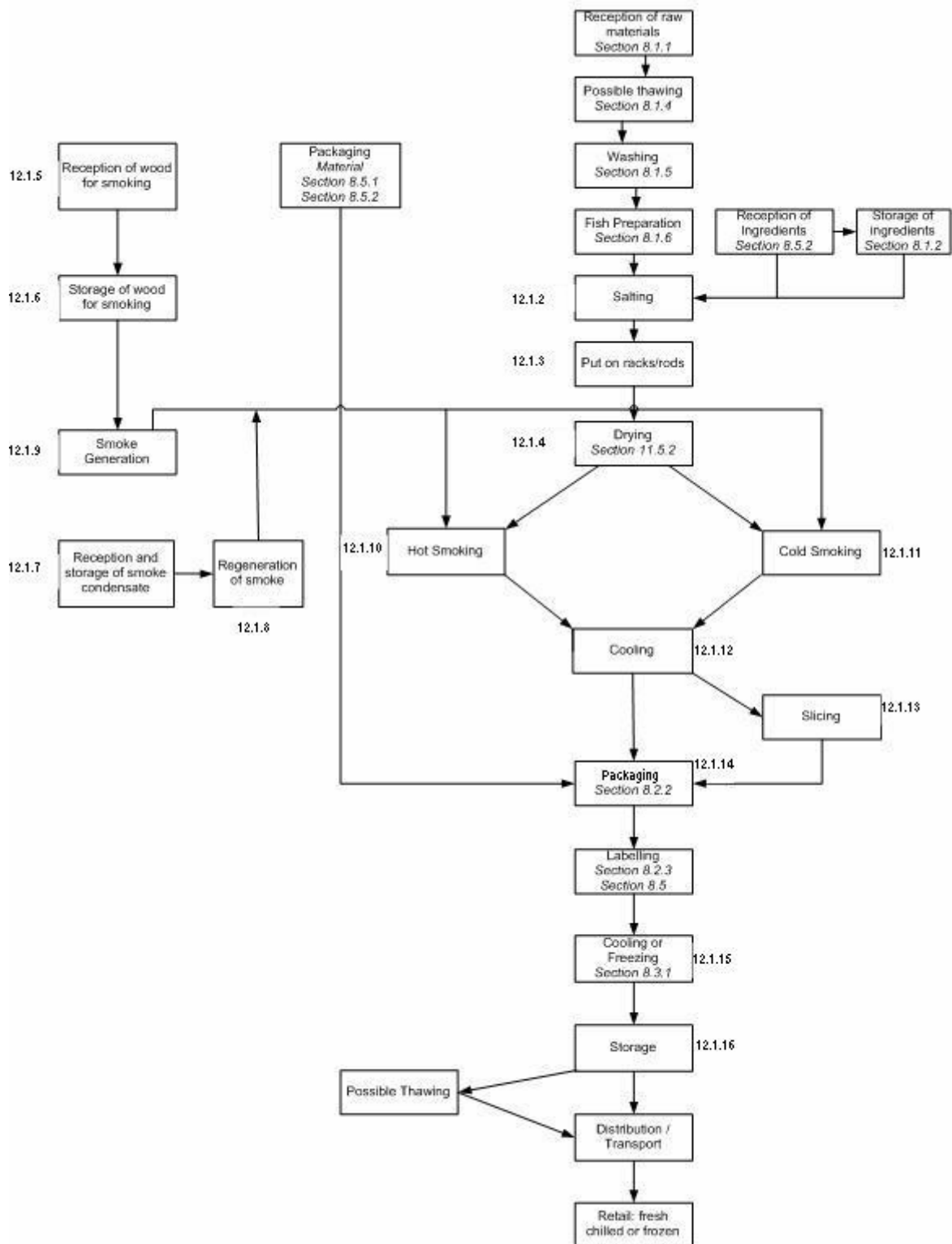
Hot smoked products and some cold smoked products, such as smoked salmon are ready to eat without a further cooking preparation stage. For these products it is necessary to introduce high care practices during the processing, which would include employment of trained staff who handle products in segregated areas, using dedicated equipment. For instance non smoked and smoked fish must be kept separate to avoid cross contamination.

¹ under development

Example of a flow chart of a Hot Smoking, Cold Smoking and Smoking by Regenerated Smoke Preparation Line, including possible slicing operation at the Cold Smoking line.

This flow chart is for illustrative purposes only.

For in-factory HACCP implementation a complete and comprehensive flow chart has to be drawn up for each process.



12.1.1 Reception of raw materials

Refer to Section 8.1.1

12.1.2 Salting

Refer also Sections 11.3 and 11.4

Potential Hazards: Microbiological, chemical and physical contamination, scombrotoxins, presence of metal, broken needles

Potential Defects: Decomposition, physical contamination, undesired texture, physical damage

Technical Guidance:

- Typically fish for hot smoking are salted only a short time for enhancing flavour, using a low to medium strength salt brine.
- Fish for cold smoking are dry salted, wet salted, combined salted or salted by brine injection of a medium strength salt brine to enhance flavour and for safety purposes. To ensure a uniform salt distribution throughout the fish, it can be left for up to 24 hours under refrigeration to equilibrate. The equilibration time should be adapted to the salting technique used to the temperature (8-12°C) and depending on the fish species.

Salting time and temperature and fish temperature should be selected so as to control the development of histamine, where fish of susceptible species are concerned (e.g. *Scombridae*, *Clupeidae*, *Engraulidae*, *Coryphaenidae*, *Pomatomidae*, *Scomberesocidae*). Brine should be prepared from food grade salt and water of potable quality.

Brine should be replaced according to the environmental conditions and the process.

- Salt content of the brine should be monitored regularly.
- To control or assist in the control of *Clostridium botulinum* examples of controls may be found in Annex II of Standard for Smoked Fish, Smoke-Flavoured fish and Smoke-Dried fish¹.
- The brine should be kept cooled and the temperature should be monitored.
- Brine should preferably not be reused and if it needs to be recycled, a treatment should be applied to minimise microbiological hazards, e.g. by filtration.

Where brine is injected special care should be taken for the maintenance, cleaning and disinfection of the equipment (section 11.4.2).

To assure proper salting the fish should be of similar size.

- To avoid histamine formation and potential microbiological contamination, the flow of products should be maintained in such a way as to avoid undue accumulation and, consequently, temperature abuse.
- Vats used for salting should be made of suitable corrosion resistant material and should be constructed to permit easy cleaning and complete draining.
- Injected fish products should be checked for broken needles and metal inclusion.
- Ingredients such as flavours (except smoke flavours) and other additives may be added during the salting process either by soaking, injection or dry application.
- If water added during the salting step is not completely removed during the drying and salting steps, then the resulting water added products should be labelled according to the laws in the country of sale.

12.1.3 Hanging and racking

Potential Hazards: Microbiological contamination

Potential Defects: Physical damage, drying/smoking defects due to inadequate separation

Technical Guidance:

- Fish should be hung or racked in a way that ensures that pieces are completely separated from each other allowing an adequate flow of air/smoke.
- The mesh in the racks should be large enough to allow an adequate flow of air/smoke.
- As *Staphylococcus aureus* has been given a competitive advantage via brining, a strict adherence to time/temperature and hygiene/sanitation controls should be followed at all steps post-brining (excluding the smoking and refrigeration/freezing steps) to minimise risk of contamination of the product and subsequent microbiological growth.

12.1.4 Drying

Refer also to Section 11.5.2

Potential Hazards: Microbiological contamination, physical contamination, and histamine formation

Potential Defects: Decomposition, fungal contamination, physical contamination

Technical Guidance:

- The drying process should ensure that the fish loses an adequate amount of water to be stable during the smoking process.
- Care should be taken to avoid excessive loss of moisture leading to poor (dry) texture.
- The salting process is usually followed by an air drying phase to evaporate moisture prior to smoking to facilitate reaching final product characteristics.
- Drying should not result in prolonged exposure to ambient temperature as this may lead to unwanted microbiological growth and to formation of histamine in susceptible species.
- Drying should be performed under conditions of controlled temperature, humidity and air flow where applicable.

12.1.5 Reception of wood or plant material for smoking

Potential Hazards: Natural toxins, chemicals, paint, impregnating material in the wood or plant material

Potential Defects: Undesirable odours

Technical Guidance:

- The wood or plant material should be dry enough for smoking and free from natural toxins, chemicals, paint etc.
- Wood or plant material of species not suitable for smoke production should not be used.
- Wood containing mould or fungus may impart off-flavours and odours and should not be used.

12.1.6 Storage of wood or plant material for smoking

Potential Hazards: Chemical contamination

Potential Defects: Undesirable odours

Technical Guidance:

- Wood or plant material for smoking should be stored in a dry and protected place.
- Contamination during storage should be avoided.

12.1.7 Reception and storage of smoke condensate

Potential hazards: Residues of Polycyclic Aromatic Hydrocarbons (PAH)

Potential Defects: Unlikely

Technical guidance:

- Smoke condensate should come from a reputable reliable source and may need to be approved by the competent authority.
- Containers with smoke condensate should be stored in a dry, clean place.
- Containers with smoke condensate should be labelled adequately as such.

12.1.8 Regeneration of smoke

Potential hazards: Unlikely

Potential defects: Inadequate smoking

Technical guidance:

- The diameter of the spray nozzle tip should be chosen to generate a smoke aerosol having a particle size close to a conventionally generated smoke.
- The settings of the flow of smoke condensate and compressed air should ensure adequate generation of smoke in a desired amount.
- Cleaning should be carried out as needed to maintain regenerated smoke characteristics.

12.1.9 Smoke generation from wood and other plant material

Refer to the *Codex Code of Practice for the Reduction of Contamination of Food with Polycyclic Aromatic Hydrocarbons (PAH) from Smoking and Direct Drying Processes* (CAC/RCP 68-2009).

Potential hazards: Formation of excessive amounts of PAH

Potential Defects: Inadequate smoking

Technical guidance:

- The amount of smoke entering the chamber should be controlled in line with the instructions of the manufacturer.
- Smoke generation is created by smouldering (pyrolysis) and care should be taken to ensure that there is no flame development.

12.1.10 Hot smoking

See also Section 3.4

Potential hazards: parasites and microbiological contamination, chemical contamination from smoke

Potential defects: Physical contamination (tar, ash), poor colour, flavour and texture

Technical guidance:

- Time and temperature of the smoking process should be monitored to achieve the desired colour, taste and texture, and to ensure control of microbiological contamination. Continuous monitoring devices are recommended to ensure that time and temperature conditions are met.
- Time and temperature combination should be controlled, monitored and recorded to ensure effective control of *Listeria monocytogenes* and to damage spores of non-proteolytic *Clostridium botulinum*. Listericidal processes should be validated to ensure that the treatments are effective and can be applied consistently. An appropriate time/temperature combination must be used for complete coagulation of proteins (a typical example of hot smoking temperature reaches 65°C in the thermal centre of the product).

- To achieve the above the heated air and the smoke should be evenly distributed in the smoking chamber.

12.1.11 Cold smoking

Potential hazards: Chemical contamination from smoke, growth of Clostridium botulinum

Potential defects: Physical contamination (tar, ash), poor colour, flavour and texture

Technical guidance:

- In the cold smoking process the temperature of the products is kept below the coagulation temperature for the proteins of the flesh of the fish, usually under 30°C, but can vary between 27°C and 38°C. Time and temperature of the smoking process should be monitored to achieve the desired colour, taste and texture. Continuous monitoring devices are recommended to ensure that time and temperature conditions are met.
- Cold smoking should be carried out under microbiologically monitored hygienic conditions in a chamber and using equipment that is subjected to a detailed hygienic schedule. See also Section 3.4. Smoking time should be long enough to reduce the water content of the product sufficiently.
- The total smoking process should be continued until moisture content targets and weight loss targets are reached.

12.1.12 Cooling

Potential hazards: Microbiological contamination

Potential defects: Poor taste and texture

Technical Guidance:

- Cooling should be done in a controlled environment to avoid cross contamination.
- When smoking is finished the fish should be cooled rapidly and thoroughly to a temperature which minimises microbiological growth in relation to the determined shelf-life.

12.1.13 Slicing

Refer also Section 3.4.

Potential hazards: Microbiological contamination

Potential defects: Physical contamination, poor slices

Technical guidance:

- The smoked fillets may be cold tempered (e.g. partially frozen to -5°C to -12°C) for a short time period to stabilise the fish flesh to facilitate mechanical slicing.
- The slicing process and the transport of the conveyer belts are critical to the hygienic condition of the end product.
- The flow of products should be maintained to avoid undue accumulation of products along the processing line.

The slicing devices should be well maintained for optimal slicing performance.

12.1.14 Packaging

Refer also to Sections 8.2 and 8.5

Potential hazards: Microbiological, chemical and physical contamination

Potential defects: Physical contamination

Technical guidance:

- Smoked products may be chilled or frozen prior to packaging.
- With reduced oxygen packaging (e.g. modified atmosphere, vacuum), or with any product that does not have adequate oxygen permeability, barriers to growth of *Clostridium botulinum* should be used. Such barriers often include freezing or refrigeration, combined with salting and drying to lower water activity. See Annex II of the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish¹.
- In case of modified atmosphere packaging, the composition of the gas mixture should be checked regularly.
- Packaging material should be clean, sound, durable and sufficient for intended use and of food grade material.
- Condensation of water on the surface of the smoked product should be avoided.

12.1.15 Cooling or freezing

Refer also Sections 8.3.1 and 12.1.12

Potential hazards: Microbiological contamination, survival of parasites

Potential defects: Poor taste and texture, decomposition

Technical guidance:

- If freezing at this process step is carried out to kill parasites, a time/temperature regime has to be chosen as laid down in Annex I of the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish¹.

12.1.16 Storage

Refer also Sections 8.1.2, 8.1.3 and 14.2.18

Potential hazards: Microbiological contamination

Potential defects: Poor taste and texture, decomposition, freezer burn

Technical guidance:

- For the control of *Clostridium botulinum* refer to Annex II of the Standard for Smoked Fish, Smoke-Flavoured Fish and Smoke-Dried Fish¹.
- Temperature should be monitored and recorded in the cold store for both cooled and frozen product to meet shelf-life requirements.
- The maintenance of proper storage temperature (chilled or frozen) for both cold and hot smoked products is of critical importance in controlling microbiological growth, in particular growth of *Listeria monocytogenes*, *Staphylococcus aureus* and *Clostridium botulinum*.

12.1.17 Labelling

Refer also Sections 8.2.3 and 8.5

Potential hazards: Microbiological contamination, undeclared allergens

Potential defects: Incorrect labelling

Technical guidance:

- The label should include the storage temperature, shelf life, other handling and storage conditions for safety and quality. For example, *Clostridium botulinum* can grow in most vacuum packaged products after the product is thawed. Labels for these products should state “Keep frozen. Thaw under refrigeration directly before use”.

12.2 SMOKE-FLAVOURED FISH

Smoked-flavoured fish is a product produced by applying various combinations of smoke flavours which gives a smoked product taste without the use of smoke.

The smoke flavour can be applied in different ways via different technologies and at different stages of the process. In contrast to the smoking process, the different production steps are not necessarily carried out in a smoking chamber and are not carried out in a fixed order. Heat can be applied at all stages of the process, or the product can be sold uncooked to the final consumer for further preparation (heating).

The unique characteristics of the smoke-flavoured products shall be clearly described on the label so as not to mislead the consumer.

*Potential hazards: Microbiological, physical and chemical contamination from smoke flavours, growth of *Clostridium botulinum**

Potential defects: Too little or too much smoke flavour, non-homogenous distribution of smoke flavour, physical contamination, poor colour, flavour and texture

Technical guidance:

- Fish used for smoked-flavoured fish should be of good quality and prepared according to good manufacturing practices.
- Smoke flavours should not be used in an attempt to improve poor quality fish.
- Smoke flavours should be applied according to the manufacturer's recommendations.
- Smoke flavours should come from a reputable reliable source and may need to be approved by the competent authority.
- Smoke flavours that are diluted prior to application to the fish must be diluted with food grade materials and/or water of potable quality.
- If water is added during smoke flavouring of fish (e.g. injection, dip), then the resulting water added product should be labelled according to the laws of the country of sale.
- Controls should be in place to ensure that smoke flavour mixtures meet pre-determined specifications.

12.3 SMOKE-DRIED FISH

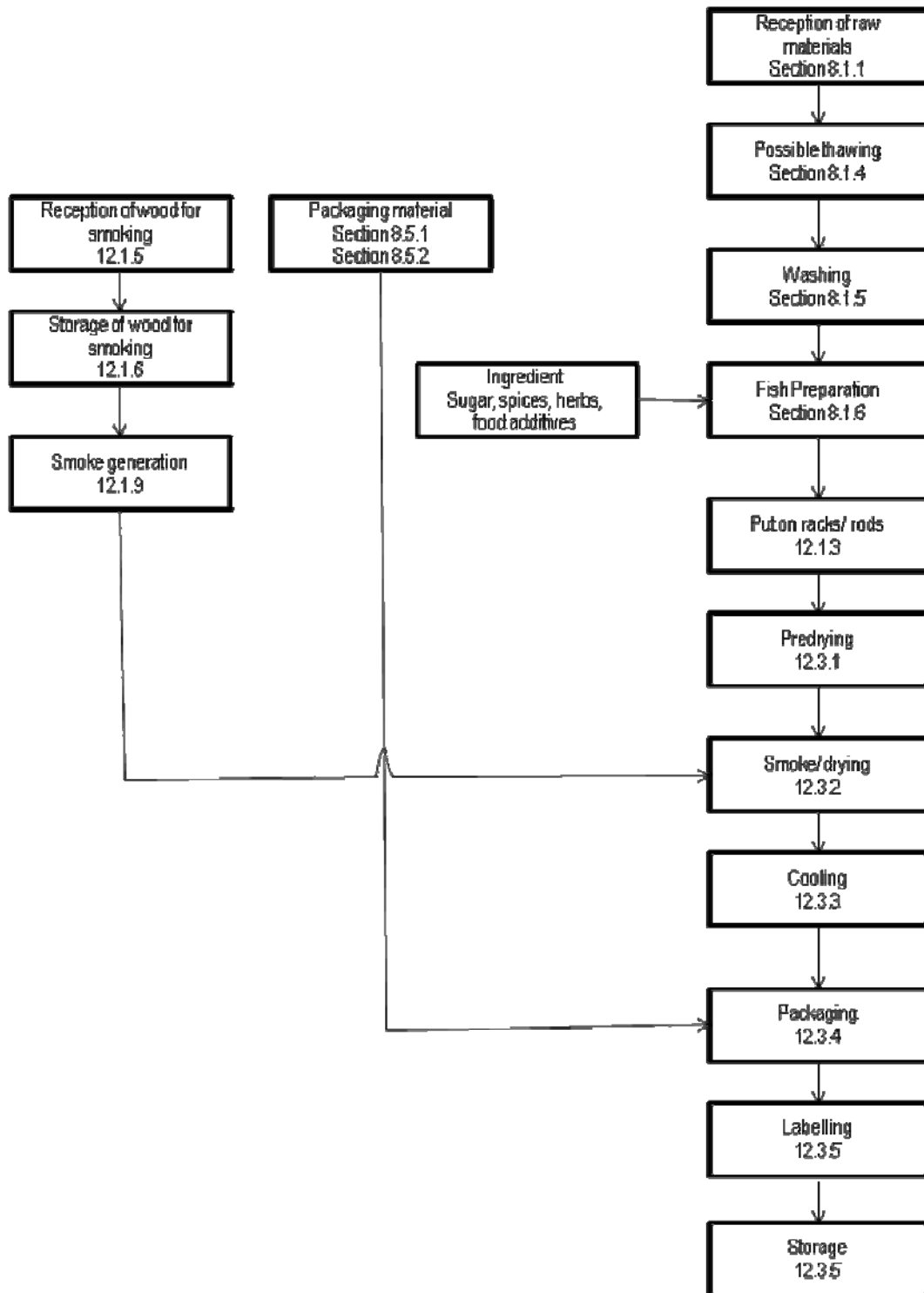
The product may be ready to eat or may be rehydrated, which is generally done by putting the product in boiling water or soup prior to consumption.

Example of a flow chart of a smoked dried fish preparation line.

This flow chart is for illustrative purposes only.

For in-factory HACCP implementation a complete and comprehensive flow chart has to be drawn up for each process.

References correspond to relevant sections of the Code.



12.3.1 Pre-drying

Potential hazards: Microbiological and physical contamination

Potential defects: Decomposition, physical contamination

Technical guidance:

- Fish for smoke drying should be exposed to sun, air or mechanical drying for a period of time in order to reduce the water content of the skin and flesh which should help providing uniform distribution of smoke over product surfaces.

12.3.2 Smoke drying

Refer also Section 3.2.2

Potential hazards: Parasites and micro-organisms, chemical contamination from smoke

Potential defects: Physical contamination (filth), burnt parts, poor texture

Technical guidance:

- Time and temperature of the smoke drying process should be monitored to achieve the desired texture and water activity as well as to minimise the risk of generation of components such as PAH.
- To achieve the above, the heated air should reach each part of the product evenly.
- The fish should be far enough away from the fire to prevent any burning of fish parts.
- Contamination of smoke-dried products with sand, ash, dust, filth and rust should be avoided.
- If smoke drying is carried out in a smoking chamber, smoking and drying are done simultaneously in the smoking chamber. Temperature in the chamber should gradually increase from 50°C to 70°C. The smoking and drying process are continued until the finished product is completely dried with the final moisture content less than 10% or the water activity should be less than 0.75.

12.3.3 Cooling

Refer also Section 3.2.2

Potential hazards: Unlikely

Potential defects: Insect infestation, physical contamination with filth

Technical Guidance:

- When smoke drying is finished the fish should be allowed to cool to ambient temperature.
- Cooling should be carried out in a dry area under controlled conditions to avoid partial rehydration and cross contamination, respectively.

12.3.4 Packaging

Potential hazards: Microbiological, chemical and physical contamination

Potential defects: Physical contamination, physical damage, rehydration

Technical guidance:

- Packaging material should be dry, clean, sound, durable and sufficient for intended use and of food grade material.
- The packaging should enclose the product to protect it against environmental influences, according to the law and customs in the country where the fish is to be sold.

- The packaging should adequately protect smoke-dried fish from moisture or humidity which could raise the water activity allowing mould and/or pathogen growth.

12.3.5 Labelling

Potential hazards: Unlikely.

Potential defects: Incorrect labelling.

Technical Guidance:

- The smoke dried products should be clearly labelled in which manner it has to be prepared prior to consumption.

12.3.6 Storage

Potential hazards: Unlikely

Potential defects: Insect infestation, physical damage

Technical guidance:

- The smoke dried fish should be handled with care.
- Care should be taken to avoid any rehydration.

APPENDIX VI**PROPOSED DRAFT AMENDMENT TO THE SECTION 3.4.5.1 WATER OF THE CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS****(at Step 5/8 of the Procedure)****3.4.5.1 Water**

When an establishment has its own supply of fresh water or seawater or other water sources, and chlorine is used for the treatment of water that may come in direct contact with fish and fishery products, the residual content of chlorine should not exceed that of potable water. The use of higher concentrations of chlorine¹ in water treatment, in the primary production-to-consumption food chain, is subject to approval by the competent authority, where appropriate.

¹ Attention has to be paid to the possible formation of potentially toxic compounds such as chloramines when adding chlorine to seawater.

APPENDIX VII

**PROPOSED DRAFT STANDARD FOR FRESH AND
QUICK FROZEN RAW SCALLOP (PECTINIDAE) ADDUCTOR MUSCLE MEAT
(At Step 5 of the Procedure)**

1. SCOPE

This standard applies to bivalve species of the *Pectinidae* family fresh and quick frozen raw scallop adductor muscle meats¹ in which the shell, viscera and roe have been removed. This standard also applies to processed scallop meat products that have added water and/or food additives; frozen processed product can also be processed scallop meat with roe attached. Products covered by this standard may be intended for direct human consumption or for further processing.

This standard does not apply to:

- i) scallop meat that is formed, mixed with extenders, or bound by fibrinogen or other binders and;
- ii) live scallops and scallop meat in which the shell and all viscera are attached. These products shall meet the requirements that apply to live and raw bivalve molluscs in the Standard for Live and Raw Bivalve Molluscs (CODEX STAN 292-2008).

2. DESCRIPTION**2.1 Product definition****2.1.1 Scallop Meat**

Scallop meat is scallop meat without added water, food additives, or other food ingredients. Raw fresh or quick frozen scallop meat is prepared by completely removing the adductor muscle from the shell and completely detaching the viscera and roe if applicable from the adductor muscle of live scallops. The muscle is presented whole.

2.1.2 Scallop Meat Processed with Added Water²

Fresh or quick frozen raw processed scallop meat is prepared by deliberate addition of water and may contain food additives and salt.

2.2 Process definition**2.2.1 Scallop Meat**

After removal of the shell and viscera under good hygiene practices, the product is rinsed and stored with a view to minimize absorption of water to the extent that is technologically necessary. The fresh product shall be kept below 4°C. Product, intended to be frozen shall be subjected to a freezing process and shall comply with the conditions laid down hereafter. The freezing process shall be carried out in appropriate equipment in such a way that the range of temperature of maximum crystallization is passed quickly, in accordance with the requirements of the Recommended International Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976).

The recognized practice of repacking quick frozen products under controlled conditions which will maintain the quality of the product, followed by the reapplication of the quick freezing process as defined, is permitted. These products shall be processed and packaged so as to minimize dehydration and oxidation.

¹ Hereafter referred to as scallop meat

² Hereafter referred to in this Standard as processed scallop meat product

2.2.2 Scallop Meat Processed with Added Water

The product is subject to the addition of water (e.g. soaked in a bath of potable water), with or without additives. The amount of added water shall be controlled. The fresh product shall be kept below 4°C. Product, intended to be frozen shall be subjected to a freezing process and shall comply with the conditions laid down hereafter. The freezing process shall be carried out in appropriate equipment in such a way that the range of temperature of maximum crystallization is passed quickly, in accordance with the requirements of the Recommended International Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976).

The recognized practice of repacking quick frozen products under controlled conditions which will maintain the quality of the product, followed by the reapplication of the quick freezing process as defined, is permitted. These products shall be processed and packaged so as to minimize dehydration and oxidation.

2.3 Presentation

Any presentation of the product shall be permitted provided that:

- It meets all requirements of this standard, and it is adequately described on the label to avoid confusing or misleading the consumer, and;
- The scallop meat may be packed by count per unit weight
- If the scallop meat pack exhibits the presence of broken pieces that is > 5% of the sample weight, then the product must be presented as “pieces” or terms to that effect.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Scallop Meat

The product shall be prepared from sound and wholesome scallops which are of a quality suitable to be sold fresh for direct human consumption.

3.2 Scallop Meat Processed with Added Water

The product shall be prepared from sound and wholesome scallops which are of a quality suitable to be sold fresh for direct human consumption.

For scallop meat products processed with added water and/or food additives, added water and/or food additives and salt are permitted to the extent that their use is acceptable in accordance with the law or custom of the country in which the product is sold. Any water added shall be of potable quality. Added salt shall comply with the Codex Standard for Food Grade Salt (CODEX STAN 150-1985).

3.3 Glazing

If glazed, the water used for glazing or preparing glazing solutions shall be potable water or clean sea water. Potable water is fresh-water fit for human consumption. Standards for potability shall not be less than those contained in the latest edition of the WHO “International Guidelines for Drinking Water Quality.” Sea water used for glazing must meet the same microbiological standards as potable water and is free from objectionable substances.

3.4 Final Product

3.4.1 Products shall meet the requirements of this Standard when lots examined in accordance with Section 10 comply with the provisions set out in Section 9. Products shall be examined by the methods given in Section 8.

3.4.2 In order to prevent economic fraud and unfair trade practices, harvesting, storage and handling must be conducted in accordance with good manufacturing practices.

3.4.2.1 Scallop Meat: It is not an acceptable practice to handle and/or store this product in such a manner that would result in uptake of water beyond small amounts technologically unavoidable under good manufacturing practices compared to what naturally occurs in scallops at time of harvest.

3.4.2.2 Scallop meat products processed with added water: Added water, and/or food additives and/or salt are permitted to the extent that their use is acceptable in accordance with the law or custom of the country in which the product is sold.

In order to check the conformity with section 3.4.2.1 and 3.4.2.2, a country may establish a scientifically supported criterion. Where a country has relevant scientific information on the characteristics of the scallop species it exports, it may approach an importing country to discuss the implementation of this criterion on a species by species basis.

4. FOOD ADDITIVES

4.1 Scallop Meat

No food additives are permitted in this product.

4.2 Scallop Meat Products Processed With Added Water

Additives are allowed in quick frozen raw processed scallop meat products to the extent that their use is acceptable within the country of production and in any country to which they are exported. Additives must be applied in conformance with section 3 of the General Standard for Food Additives (CODEX STAN 192-1995) and with good manufacturing practices as provided in section “X” of the Code of Practice for Processing of Quick Frozen Scallop Meat³.

Phosphates listed in Table 1 in the GSFA are allowed at a maximum level of 5000 mg/kg expressed in P₂O₅ (including phosphates naturally present in the shellfish).

5. CONTAMINANTS

5.1 The product covered by this Standard shall comply with the Maximum Levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX/STAN 193-1995) and the maximum residue limits for veterinary drugs established by the CAC.

5.2 The product shall not contain marine biotoxins⁴ exceeding the levels set out in Section I-5.2 of the Codex Standard for Live and Raw Bivalve Molluscs (CODEX STAN 292-2008) and as sampled and analysed in accordance with the same Standard .

6. HYGIENE AND HANDLING

6.1 The final product shall be free from any foreign material that poses a threat to human health.

6.2 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969) and other relevant Codex texts such as:

(i) the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003);

(ii) the Recommended International Code of Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976).

6.3 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria in Foods (CAC/GL 21-1997).

6.4 The product shall not contain any other substance in amounts which may present a hazard to health in accordance with standards established by the Codex Alimentarius Commission.

³ under development

⁴ When scallop meat is prepared in accordance with the Revised Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) – Section X: Processing of Scallops Meat (under elaboration), marine biotoxins are not reasonably likely to present a hazard in scallop meat. While the hazard analysis will consider marine biotoxins as a potential hazard, this hazard will be excluded or included based upon the species and the available data for toxins in that species.

7. LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985,) the following specific provisions apply:

7.1 Name of the Food

The name of the product shall be:

7.1.1 Scallop Meat

“X scallops” if it conforms with the product description outlined in 2.1.1 or

7.1.2 Scallop Meat Processed with Added Water

“ X scallops with added water”, ‘Preparation of X scallops with added water’, or a like name as allowed in the country of sale, which differentiates the product from scallop meat and is not misleading to the consumer if it conforms with the product description outlined in 2.1.2.

“X” in 7.1.1 and 7.1.2 being the common or usual name of the species of scallops according to the law, custom and practice in the country in which the product is to be distributed in a manner not to mislead the consumer.

7.2 There shall appear on the label, reference to the forms of presentation described in Section 2.3, in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation to avoid misleading or confusing the consumer.

[**7.3** Water added as an ingredient to scallop meat shall be declared in the list of ingredient⁵ and the percentage of scallop meat shall clearly appear on the label.]

7.4 Net Contents (Glazed Products)

Where the food has been glazed the declaration of net contents shall be exclusive of the glaze.

7.5 Storage Instructions

The label should include terms to indicate that the product shall be stored below 4°C for fresh products and at a temperature of -18°C or colder for frozen product processed in accordance with subsection 2.2 of this standard.

7.6 Labelling of Non-Retail Containers

Information specified above shall be given either on the container or in accompanying documents, except the name of the food, lot identification, and the name and address as well as storage instructions shall always appear on the container.

However, the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

The product shall be identified by common and/or scientific names as determined by the competent authority. The country where the product is sold can determine if the scientific name must be indicated on the label.

8. SAMPLING, EXAMINATION AND ANALYSIS

8.1 Sampling

(i) Sampling of lots for examination of the product shall be in accordance with the General Guidelines on Sampling (CAC/GL 50-2004). The sample unit is the primary container, or for individually quick frozen products or bulk packaged, is at least a 1 kg portion of the sample unit.

8.2 Sensory and Physical Examination

⁵ As prescribed in section 4.2.1.5 and 5.1.2 in the General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985)

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Section 8.3 through 8.6 and Annexes, and in accordance with the Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories (CAC/GL 31-1999).

8.3 Determination of Pieces and Count

(i) A scallop meat shall be considered as a scallop piece when the weight of that scallop meat is less than 50% of the average weight of 10 randomly selected unbroken scallop meats contained in the package. The percentage of scallop pieces in the sample unit can be determined by using the following equation:

$$\% \text{ Scallop Pieces} = \frac{\Sigma \text{ weight of scallop pieces in a sample unit}}{\text{weight of sample unit}} \times 100$$

(ii) When declared on the label, the count of the scallop meat shall be determined by counting the numbers of whole scallop meat (not including pieces defined above) in the package or representative sample thereof and dividing the count of whole scallop meat by the adjusted de-glazed weight (actual de-glazed weight subtract the weight of de-glazed pieces) to determine the count per unit weight.

8.4 Determination of Net Weight of Products Covered by Glaze

Official method AOAC 963.18 net contents of frozen seafoods

8.5 Cooking Methods

The following procedures are based on heating the product to an internal temperature of 65 - 70 °C. The product must not be overcooked. Cooking times vary according to the size of the product and the temperature used. The exact times and conditions of cooking for the product should be determined prior to experimentation.

Baking Procedure: Wrap the product in aluminium foil and place it evenly on a flat cookie sheet or shallow flat pan.

Steaming Procedure: Wrap the product in aluminium foil and place it on a wire rack suspended over boiling water in a covered container.

Boil-in-Bag Procedure: Place the product into a boilable film-type pouch and seal. Immerse the pouch in boiling water and cook.

Microwave Procedure: Enclose the product in a container suitable for microwave cooking. If plastic bags are used, check to ensure that no odour is imparted from the plastic bags. Cook according to equipment instructions.

8.6 Examination for Parasites

The presence of readily visible parasites in a sample of the edible portion of the sample unit detected by normal visual inspection of the scallops.

9. DEFINITION OF DEFECTIVES

The sample unit shall be considered as defective when it exhibits any of the properties defined below.

9.1 Deep Dehydration

Greater than 10% of the weight of the scallop meat or greater than 10% of the surface area of the block exhibits excessive loss of moisture clearly shown as white or yellow abnormality on the surface which masks the colour of the flesh and penetrates below the surface, and cannot be easily removed by scraping with a knife or a sharp instrument without unduly affecting the appearance of the product.

9.2 Foreign matter

The presence in the sample unit of any matter which has not been derived from scallops, does not pose a threat to human health, and is readily recognized without magnification or is present at a level

determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices

9.3 Odour/Flavour/Texture

Scallop meat affected by persistent and distinct objectionable odours, flavours or texture indicative of decomposition and/or rancidity; or other objectionable odours, flavours, and textures not characteristic of the product.”

9.4 Parasites

[The presence of visible parasites on the near surface of the scallop adductor muscle shall not exceed 20% of individuals in the sample.]

9.5 Objectionable matter

The presence of:

- i) objectionable parts of the scallops (such as remains of gills, mantle, hepatopancreas, viscera, intestinal tract or fragments of shell), affecting more than [10%] of the sample by weight, provided the toxicity associated with the objectionable parts of scallops have met section 5.2 of this standard;
- ii) sand or other similar particles that is visible in the thawed state or detected by chewing during sensory examination, [affecting more than 10% of the sample by weight]

10. LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

- (i) the total number of defectives as classified according to Section 9 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5.
- (ii) where appropriate, the total number of sample units not meeting the count designation or presentation as defined in section 2.3 does not exceed the acceptance number (c) of the appropriate sampling plan in the Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5. In addition, the average count per unit weight shall be within the declared count range;
- (iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container; and
- (iv) the essential composition and quality factors, food additives, contaminants, hygiene and handling and labelling requirements of Sections 3, 4, 5, 6 and 7 are met.

ANNEX A**SENSORY AND PHYSICAL EXAMINATION**

Complete net weight determination, according to defined procedures in Section 8.4.

Examine the frozen scallop meat in the sample unit or the surface of the block for the presence of dehydration. Determine the percentage of scallop meat or surface area affected.

Thaw using the procedure described in Section 8.4 and individually examine each scallop meat in the sample unit for the presence of foreign matter, objectionable matter, and presentation defects.

Determine the weight of scallop meat affected by presentation defects.

Examine product for pieces and count declarations in accordance with procedures in Section 8.3.

Assess the scallop meat for odour and parasites as required.

A small portion of the sample unit (100g to 200g) is cooked without delay and the odour/flavour/texture and presence of sand is determined. If necessary, additional portions may be cooked and examined for confirmation.

APPENDIX VIII

PROPOSED DRAFT CODE OF PRACTICE ON THE PROCESSING OF SCALLOP MEAT
(at Step 3 of the Procedure)

PROPOSED DRAFT CODE OF PRACTICE FOR THE PROCESSING OF FRESH AND QUICK FROZEN RAW SCALLOP MEAT [WITH OR WITHOUT ROE]

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Appendix 'X' Optional Final Product Requirements

SECTION 2 DEFINITIONS

For the purpose of this Code:

Refrigerated Sea is sea water in fixed tanks chilled by mechanical refrigeration.

Water

[Roe on scallop is the scallop adductor muscle meat and the roe sac remaining after the viscera has been completely detached from the scallop shell.]

Scallop Meat is the adductor muscle meat remaining after the viscera and roe have been completely detached from the scallop shell.

Shucking is the process of removing the adductor muscle meat and completely detaching the viscera or viscera and roe from the shell of live scallops.

SECTION X PROCESSING OF FRESH AND QUICK FROZEN RAW SCALLOP MEAT [WITH OR WITHOUT ROE]

In the context of recognising controls at individual processing steps, this section provides examples of potential hazards and defects and describes technological guidelines, which can be used to develop control measures and corrective action. At a particular step only the hazards and defects, which are likely to be introduced or controlled at that step, are listed. It should be recognised that in preparing a HACCP and/or DAP plan it is essential to consult Section 5 which provides guidance for the application of the principles of HACCP and DAP analysis. However, within the scope of this Code of Practice it is not possible to give details of critical limits, monitoring, record keeping and verification for each of the steps since these are specific to particular hazards and defects.

As stressed by this Code, the application of appropriate elements of the pre-requisite program (Section 3) and HACCP principles (Section 5) at these steps will provide the processor with reasonable assurance that the essential quality, composition and labelling provisions of the appropriate Codex standard will be maintained and food safety issues controlled.

The commercial harvest practices of scallops can be quite variable. For instance, shucking can occur either on board fishing vessels equipped for such operations or in processing facilities. For long fishing voyages where scallops are shucked at sea and kept chilled by the application of freshwater ice, the time that the scallop meat is exposed to the melting ice can affect both the product quality and composition. The washing of scallop meat during processing is also a source of freshwater exposure affecting product composition. For the product to meet international and/or regulatory standards aimed to prevent consumer fraud and unfair trade practices, scallop fishers and processors should have proper controls in place with particular attention paid to limit excessive addition of freshwater to the product.

This section covers the preparation and handling of fresh scallop meat on board harvesting vessels prior to offloading and the processing of quick frozen scallop meat at the processing facility. This section will also address the use of freshwater [and polyphosphate treatment] during processing. The example of the flow diagram (Figure X.1) will illustrate some of the common steps involved in the processing of scallop meat.

X.1 GENERAL ADDITION TO PRE-REQUISITE PROGRAMME

Section 3 - Pre-requisite programme gives the minimum requirements for good hygienic practices for a harvesting vessel and processing facility prior to the application of hazard and defect analysis. In addition to the guidelines described in Section 3, the following should also be considered:

- Material used to contain shucked scallop meat on ice aboard harvesting vessels should be clean, sanitary and in good repair
- If scallops are shucked at sea aboard the harvesting vessel they should be thoroughly rinsed with clean sea water to minimize sand, shell, detritus and foreign material in the finished product

X.2 IDENTIFICATION OF HAZARDS AND DEFECTS

Refer also to Section 5.3.3 Conduct Hazard and Defect Analysis.

X.2.1 Hazards

Refer also to Section 5.3.3.1 Identification of Hazards and Defects. When marketing of scallop meat is concerned, this product should meet the contaminants and relevant hygienic provisions outlined in the Codex Standard for Quick Frozen Raw Scallop Adductor Muscle Meat (*under development*). [Where marketing of roe-on scallops is concerned, this product should meet the contaminants and relevant hygienic provisions outlined in the Codex Standard for Live and Raw Bivalve Molluscs (CODEX STAN 292-2008)].

This Section describes the main hazards and defects specific to scallop meat.

X.2.1.1 Marine Biotoxins

Marine biotoxins such as DSP, PSP or ASP are generally not a food safety concern in scallop adductor muscle meat alone and therefore do not pose a human health risk. Scientific data regarding the contamination of scallop meat with biotoxins are limited. Never the less, some scientific and monitoring data have shown ASP and DSP contamination in scallops, although mainly concentrated in the viscera and roe, may accumulate in the adductor muscle. While scientific information regarding biotoxin contamination in scallop meat is limited, the hazard analysis will need to consider marine biotoxins as a potential hazard. This hazard will be excluded or included based upon the species and the available country specific scientific evidence data for toxins in that species.

X.2.2 Defects

The potential defects below are outlined in Sections 3. and 9. of the Proposed Draft Codex Standard for Quick Frozen Raw Scallop Adductor Muscle Meat (*under development*).

End product specifications outlined in Appendix 'X' describe optional requirements specific to scallop meat.

X.2.2.1 Parasites

Parasites are known to affect the respiratory system, organs and the connective tissue of organs (i.e. Perkinsus spp.) in bivalve molluscs. *Sulcascaris sulcata*, a nematode, has been known to parasitize the adductor muscle of scallops; however, this species matures in cold blooded marine turtles and is not considered a hazard to humans. Never the less, the infestation of parasites in scallops or the presence of cysts can be aesthetically offensive to consumers.

X.2.2.2 Excessive Viscera, Sand, Detritus and Foreign Matter

During the shucking of scallops, incomplete removal of the viscera and other parts of the intestine from the scallop meat could occur. Sand, fine gravel, detritus and foreign matter may accompany harvested scallops from the natural environment to shipboard. If not properly rinsed away, sand and fine gravel may become embedded between the fibres of the adductor muscle. Excessive amounts of viscera and foreign matter could result in undesirable physical attributes in the final product that would be objectionable to consumers. In addition, incomplete removal of viscera may result in health hazards from biotoxins and pathogens.

X.2.2.3 “Added water”

It has been shown that freshwater in contact with scallop adductor muscle meat will increase its moisture content over time. This is because the adductor muscle of a scallop is made up of parallel strands of fibers that can absorb water through capillary action. If scallop adductor muscle meat has been in contact with fresh water, including melting fresh water ice, for an amount of time greater than that required for preparation and processing under good manufacturing practices, the product will absorb excess water, which may be construed as an unfair trade practice or consumer fraud. [The use of polyphosphates in scallops during processing will bind added water and if used improperly, can potentially lead to consumer fraud and unfair trade practices.]

Proper processing controls should be in place by the processor to ensure that water is not added to the extent that it is technologically avoidable [and that polyphosphate] and water use meets international and regulatory standards. (i.e. GMP's must be properly followed by the processor). The processor should ensure that labelling is not misleading for the consumer.

This flow chart is for illustrative purposes only. For in-factory HACCP implementation a complete and comprehensive flow chart has to be drawn up for each process.

References correspond to relevant Sections of the Code

Long Haul Harvesting Vessel Operations

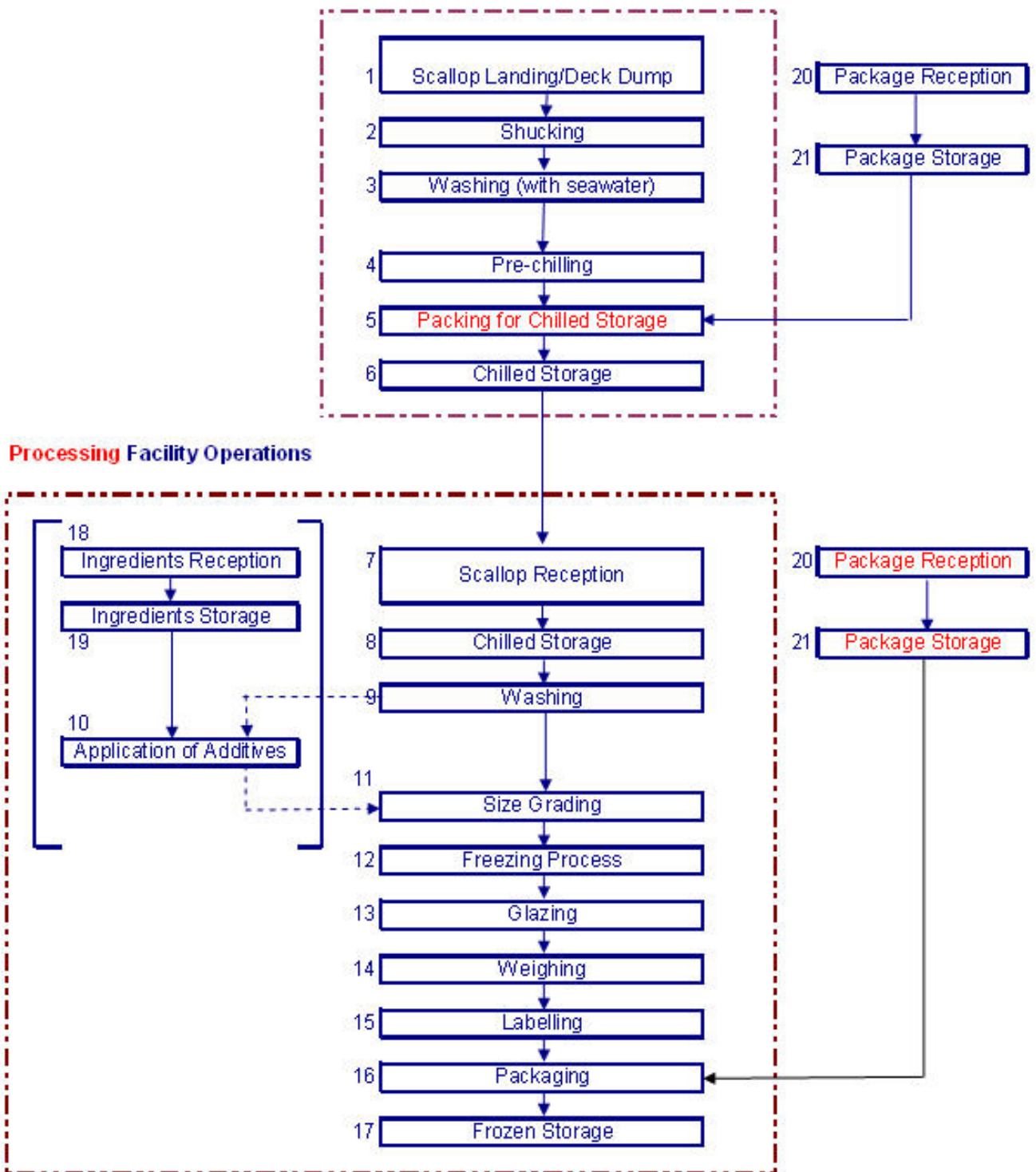


Figure X.1 Example of flow chart of processing of scallop meat

X.3 PROCESSING OPERATIONS

X.3.1 Processing Of Fresh Scallop Meat On Board a Long Haul Harvesting Vessel Prior To Offloading

Scallop fishing may be either short haul or long haul and is differentiated by the time at sea and the distance of the fish ground from the land based processing facility. “Short haul voyages” are typically 1 - 2 days in the case of inshore wild caught fisheries and daily as in the case of aquaculture-controlled harvest. “Long haul voyages” are typically offshore fishing voyages. On long haul voyages, shucking of scallops is carried out on board fishing vessels. Products are kept chilled by the application of freshwater ice and placed in appropriate refrigerated storage.

X.3.1.1 Scallop Landing/Deck Dump (Processing Step 1)

Potential Hazards: Not likely

Potential Defects: Dead animals

Technical Guidance:

- Live scallops should be collected and placed in clean storage containers without undue delay and with care to avoid contamination.
- Rough handling of live scallops should be avoided to minimize stress and injury to the animal.

X.3.1.2 Shucking (Processing Step 2)

Potential Hazards: Presence of marine biotoxin

Potential Defects: Remaining viscera

Technical Guidance:

- Live scallops should be eviscerated as soon as possible. If biotoxins are present in the viscera, this may help prevent toxin migration into the adductor muscle.
- Care should be taken when shucking to avoid damage to the viscera and/or roe that could result in transfer of marine biotoxins, if present, to the adductor muscle
- Care should be taken to ensure that the viscera, connective tissue and roe [(if applicable)] are completely removed from the scallop meat.
- Scallop meat shucked at sea should be unloaded without undue delay and placed in chilled storage until processing occurs.

X.3.1.3 Washing with Sea Water (Processing Step 3)

Potential Hazards: Shell fragments, presence of marine biotoxin

Potential Defects: Remaining viscera, physical contamination (sand, debris), excess added water

Technical Guidance:

- An adequate supply of clean seawater should be available for washing of scallop meat after shucking to remove any shell fragments, viscera, connective tissue, sand, detritus and foreign matter.
- Care should be taken during washing to minimize the contact time between water and the scallop meat in order to limit any uptake to that which is technologically unavoidable.

X.3.1.4 Pre-chilling (Processing Step 4)

Potential Hazards: Microbiological growth and/or recontamination

Potential Defects: Moisture (added water) - applies to pre-chilling using freshwater

Technical Guidance:

- Pre-chilling of the scallop meat should be employed to reduce the core temperature of the scallop meat prior to being placed in chilled storage. This step can minimize the amount of ice melt and consequently freshwater contact with the scallop meat during chilled storage. Rapid chilling will also minimize subsequent drip loss.
- Pre-chilling involves the immersion of the scallop meat in refrigerated sea water for a specified period of time.
- If freshwater ice is used in conjunction with sea water, the contact time for each batch should be kept as short as practical.
- Water used for pre-chilling should be periodically replaced to minimise the bacterial load and ensure functional water temperature.

X.3.1.5 Packing for Chilled Storage (Processing Steps 5, 20, 21)

Potential Hazards: Not likely

Potential Defects: Not likely

Also refer to Section 8.5.1 - Reception – Packaging, Labels & Ingredients; Section 8.5.2 – Storage - Packaging, Labels & Ingredients and Section 8.4.4 - Wrapping and Packing,

Technical Guidance:

- After the scallop meats are packed in clean containers made of a suitable material appropriate to be in contact with food, a tag or other appropriate identification should be attached to each container to determine the date of harvest and other relevant product information.
- The container should not be too large, appropriately filled and not over-stacked in order to facilitate thermal exchanges and to prevent scallops' damage.
- The scallop meats should be kept in a clean condition.
- [Containers should be impermeable or designed to minimize water uptake in scallop meat to the extent possible provided it does not result in quality loss in the product]

OR

- [If the container is not impermeable, it should be necessary to put an impervious film between the ice and the container to avoid water uptake]

X.3.1.6 Chilled Storage (Processing Step 6)

Potential Hazards: Microbiological growth and/or recontamination

Potential Defects: Decomposition, Moisture (added water)

Also refer to Section 8.1.2 – Chilled Storage

Technical Guidance:

- The containers of scallop meat should be surrounded by sufficient finely divided ice.
- The chilled storage or storage containers should be adequately drained. Freshwater from the melted ice should not come in contact with the product near the bottom layer.

- Where ice is used, stored scallops should be examined regularly to ensure sufficient ice cover of the product
- Temperatures should be taken to ensure that the stored scallop meat remains at temperature of melting ice.
- Prior to offloading, product and storage information (e.g. dates of harvest in relation to onboard chilled storage locations, etc.) should be considered to facilitate proper utilisation of the scallops.

X.3.2 Processing of Quick Frozen Scallop Meat

This section is designed to augment the Processing of Fresh Scallop Meat On Board a Long Haul Harvesting Vessel section with additional operation steps pertaining specifically to the processing of quick frozen scallop meat.

X.3.2.1 Scallop Reception (Processing Step 7)

Potential Hazards: Marine Biotoxin, chemical contamination

Potential Defects: Decomposition, Moisture (added water), parasites, foreign matter

Technical Guidance:

- Live scallops requiring shucking on arrival at the processing facility or scallop meats should be adequately chilled, handled without undue delay and with care to avoid contamination.
- Rough handling of live scallops should be avoided to minimize stress and injury to the animal.
- Product specifications could include the following characteristics:
 - organoleptic characteristics such as appearance, odour, texture, etc;
 - species specification
 - acceptable upper limit moisture content; (*DN: possible methods of analysis (i.e. % moisture and M/P ratio could be appended as an annex for reference purposes)*);
 - workmanship (excessive viscera/roe (in the case of adductor muscle meat only));
 - chemical contamination such as heavy metals, pesticide residues, etc.
 - presence of parasites;
 - foreign matter.
- [For the marketing of roe-on scallops, a processor should have a process in place to ensure that the toxicity content meets the regulatory requirements of the official agency having jurisdiction. For example, this could be accomplished by, but not limited to, adherence to monitoring programs or end product testing.]
- Skills should be acquired by scallop handlers and appropriate personnel in sensory evaluation techniques to ensure incoming lot meet essential quality provisions of the Codex Standard for Quick Frozen Scallop Adductor Muscle Meat.
- Appropriate procedures should be in place for scallop handlers and appropriate personnel to verify that species specifications are met. This could include but not limited to reviewing product information in commercial documentation, etc.
- Scallops or scallop meats should be rejected if known to contain harmful, decomposed or extraneous substances, which will not be eliminated or reduced to an acceptable level by normal procedures of sorting or preparation. An appropriate assessment should be carried out to determine the reason(s) for loss of control and the HACCP or DAP plan should be modified where necessary.

X.3.2.2 Chilled Storage (Processing Step 8)

Potential Hazards: Microbiological pathogen growth

Potential Defects: Decomposition

Also refer to Section 8.1.2 – Chilled Storage

Technical Guidance:

- For scallop meat packed in containers, their identification tag facilitates the determination of the harvest date and the number of days the product has been kept in contact with freshwater ice. Stock rotation schemes should be used to ensure proper utilisation of the scallops.
- Products should be stored at the adequate temperature approaching that of melting ice. The temperature should be monitored during chilled storage.
- Product should be stacked in a manner that would facilitate adequate and uniform temperature distribution to all parts of the stored product.

X.3.2.3 Washing (Processing Step 9)

Potential Hazards: Shell fragments

Potential Defects: Excessive water, physical contamination (sand, debris)

Technical Guidance:

- Scallop meat should be gently agitated to allow separation from each other and to ensure the removal of foreign matter.
- Chilled salt water (3%) should be used for the washing of scallop meat to minimize the uptake of moisture.
- Chilled salt water should be prepared from potable water and food grade salt. The salinity of chilled salt water should be monitored
- The use of freshwater should be avoided. If used, a washing/showering method should be clearly defined and should address the contact time.
- The washing schedule (contact time parameters) should be carefully monitored.
- The washed scallop meats should be adequately drained.
- After washing, the scallop meat should be immediately processed or refrigerated and kept at the adequate temperature (temperature of melting ice).

[X.3.2.4 Application of Additives to Scallop Meat (Processing Steps 10, 18, 19)

Potential Hazards: Not likely

Potential Defects: Excess water, off-flavours

Also refer to Section 8.5.1 Reception – Packaging, Labels & Ingredients and Section 8.5.2 Storage - Packaging, Labels & Ingredients.

Technical Guidance:

- Soaking scallop meat in a phosphate solution is the most common method of polyphosphate application. Polyphosphates can also be applied by dipping, spraying or tumbling in phosphate solution.
- The application of phosphates should not result in more than a small increase in moisture that can occur under good manufacturing practices without the use of phosphates. If polyphosphates are used, a processor should develop a process for its application in order to consistently achieve its beneficial functional goals.

- Polyphosphates should be blended in the proper proportions and should adhere to the appropriately validated contact time. The amount of water absorbed by the scallop meat will increase with soaking time.
- Additives should comply with the requirements of the Codex General Standard for Food Additives and the Proposed Draft Standard for Quick Frozen Raw Scallop Adductor Muscle Meat.]

X.3.2.5 Size Grading (Processing Step 11)

Potential Hazards: Not likely

Potential Defects: Decomposition

Technical Guidance:

- Size grading of scallop meat is typically undertaken through mechanical graders of various degrees of sophistication. There is a possibility of scallop meat becoming trapped in the bars of the graders so that regular inspection and cleaning is required to prevent “carry-over” of old scallop meat.
- After grading, the scallop meat should be immediately processed or refrigerated and kept at the adequate temperature (temperature of melting ice).

X.3.2.6 Freezing Process (Processing Step 12)

Potential Hazards: Not likely

Potential Defects: Texture deterioration

Refer to Section 8.3.1 Freezing Process

X.3.2.7 Glazing (Processing Step 13)

Potential Hazards: Not likely

Potential Defects: Subsequent dehydration, incorrect net weight

Refer to Section 8.3.2 Glazing

Technical Guidance:

- Care should be taken to ensure that the entire surface of the frozen scallop meat is covered with a suitable protective coating of ice and should be free of exposed areas where dehydration (freezer burn) can occur.

X.3.2.8 Weighing (Processing Step 14)

Potential Hazards: Unlikely

Potential Defects: Incorrect net weight

Refer to Section 8.2.1 Weighing and Section 8.3.2 Glazing

X.3.2.9 Labelling (Processing Steps 15)

Potential Hazards: Unlikely

Potential Defects: Incorrect labelling, undeclared additive, undeclared added water

Also refer to Section 8.2.3 Labelling

Technical Guidance:

- Labeling must accurately describe the nature of the product so that consumers are not misled and can make an informed choice.
- [Where polyphosphate was used in the process, a system should be in place to ensure that this additive is properly declared on the label.]

- Where moisture content prescribed by national legislation has been exceeded, the label must indicate that water was added in accordance with national legislation of the country where the product is sold.

X.3.2.10 Packaging (Processing Steps 18, 19, 20, 21)

Potential Hazards: Not likely

Potential Defects: Not likely

Refer to Section 8.5.1 Reception – Packaging, Labels & Ingredients; Section 8.5.2 Storage - Packaging, Labels & Ingredients and Section 8.4.4 Wrapping and Packing

X.3.2.11 Frozen Storage (Processing Step 17)

Potential Hazards: Unlikely

Potential Defects: Dehydration, decomposition, development of rancid odours, loss of nutritional quality

Refer to Section 8.1.3 Frozen Storage

APPENDIX 'X

OPTIONAL FINAL PRODUCT REQUIREMENTS – SCALLOP MEAT [TO BE COMPLETED]

- **Varying colour (i.e. light orange verses milk white):** In the spring, sea scallops have orange-colored roe that can bleed into the adductor muscle. This cosmetically different product known as "pumpkins" in the scallop industry may not be preferred in some markets.

APPENDIX IX

**PROPOSED DRAFT PERFORMANCE CRITERIA FOR REFERENCE AND
CONFIRMATORY METHODS FOR MARINE BIOTOXINS
(FOR INCLUSION IN SECTION I-8.6 IN THE STANDARD FOR LIVE AND RAW BIVALVE
MOLLUSCS)
(at Step 3 of the Procedure)**

Background

As scientific knowledge evolves rapidly in the area of biotoxin methods, it is understood that a list of very specific methods may become out of date. In view of the difficulties this would present, described below are the proposed general performance criteria and principles for reference methods¹ that can be used by competent authorities to select methods that are adequate for monitoring biotoxins for regulatory purposes. Preference should be given to methods that have applicability for routine use.

Prior to selection of a potential method of analysis for biotoxins, each competent authority must have knowledge concerning the relative hazard presented by the toxins present in their territorial waters. This includes a 'farm to fork' understanding which includes the algae that contribute to the toxin formation, toxin analogues generally or usually present in the shellfish (at a minimum) and in the source organism (where possible) from their territorial waters, the bivalve species impacted and the mechanisms by which the toxins impact human health.

Competent authorities considering the use of a particular method may utilize a screening method as a complement to reference methods to gain efficiencies for routine biotoxin monitoring. Competent authorities should evaluate their entire biotoxin testing strategy against the performance criteria outlined herein.

General proposed performance criteria/principles:

General method principles and performance criteria (General Criteria) are outlined in the *Codex Alimentarius Commission PROCEDURAL MANUAL, 19th ed.* document (ISBN 978-92-5-106493-1) in the PRINCIPLES FOR THE ESTABLISHMENT OF CODEX METHODS OF ANALYSIS section. Analytical terms are further defined in the CODEX document Guidelines on Analytical Terminology (CAC/GL 72-2009). The competent authority is advised to refer to these documents when considering the following Marine Biotoxin method principles and criteria.

The following Marine Biotoxin principles and method criteria are a specific application of the General Criteria. The Marine Biotoxin principles and method criteria, outlined in the Table *Appendix I: Method performance parameters for marine biotoxins*, are to be considered by the competent authority to be inclusive of analytic approach.

(a) Selectivity

- (i) Group specific i.e., the method used should be applicable to the appropriate toxin group it is testing.
- (ii) Preference should be given to methods that can be used to test multiple toxin analogues and, when applicable, multiple toxin groups.

(b) Trueness and Recovery

¹ Reference method: Quantitative analytical method of proven reliability characterised by well-established trueness, specificity, precision and detection power. These methods generally haven't been collaboratively studied and are usually based on molecular spectrometry. The reference method status is only valid if the method is implemented under an appropriate QA regime. (Guidelines on Good Laboratory Practice in Residue Analysis CAC/GL 40-1993, Rev.1-2003).

(i) Group trueness i.e., differences in recovery may exist but is acceptable if the overall trueness (to estimate toxicity) is correct.

(ii) Preference should be given to methods that minimize bias and have minimized recovery corrections.

(c) Precision

(i) Methods that have undergone inter-laboratory or collaborative studies based on internationally recognized protocols (such as AOAC International or Codex GL 64) are preferred.

(ii) Consideration should be given to intra-laboratory or single lab validation studies, using internationally accepted validation protocols or guidelines, which may have been published in peer reviewed journals.

(d) Detection Capability

(i) Methods should be sufficiently capable to detect the named biotoxin components at the performance limits outlined in Appendix I.

(ii) Preference should be given to methods with detection limits less than in (i) thereby providing an early warning.

(e) Quantification

(i) Methods that detect groups of analogues should be capable of estimating total toxicity.

(ii) Preference should be given to methods that can provide biotoxin profile information and should be given to methods that can provide quantitative information.

(f) Scope

(i) The relative toxicity of structural analogues should be considered when determining method performance requirements. Preference should be given to methods that express the values in terms of relative toxicity.

(ii) Preference should be given to methods that detect a greater number of biotoxin analogues within a particular group.

(g) Measurement Uncertainty

(i) The measurement uncertainty associated with all analytical results should be estimated.

Method performance parameters for marine biotoxin methods

Group	Toxin		Units	Maximum Level	Minimum Range	Limit of Detection	Limit of Quantification	Precision at ML	Recovery ^{a,b}	Trueness	
Saxitoxin Group	Total Toxicity		mg STXdiHCl eq/kg ^c	0.8	0.26 - 1.34	0.08	0.16	.44%	70-120	CRM	
	Saxitoxin	STX			0.04- 1.34	0.04	0.08				
	Neosaxitoxin	NEO			0.04- 1.34	0.04	0.08				
	Decarbamoyl-saxitoxin	dcSTX			0.04- 1.34	0.04	0.08				
	Decarbamoyl-neosaxitoxin	dcNEO			0.04- 1.34	0.04	0.08				
	Gonyautoxin-1	GTX1			0.04- 1.34	0.04	0.08				
	Gonyautoxin-4	GTX4									
	Gonyautoxin-3	GTX3			0.04- 1.34	0.04	0.08				
	Gonyautoxin-2	GTX2									
	Gonyautoxin-5	GTX5			0.04- 1.34	0.04	0.08				
	Gonyautoxin-6	GTX6			0.04- 1.34	0.04	0.08				
	Decarbamoyl-gonyautoxin-2	dcGTX2			0.04- 1.34	0.04	0.08				
	Decarbamoyl-gonyautoxin-3	dcGTX3									
	N-sulfocarbamoyl-gonyautoxin-2	C1			0.04- 1.34	0.04	0.08				
N-sulfocarbamoyl-gonyautoxin-3	C2										
Domoic Acid Group	Domoic Acid	DA	mg DA/kg	20	13.2 - 26.8	2	4	.22%	85-110 %	CRM	
	epi-Domoic Acid	epiDA		Method should detect this analyte							
Okadaic Acid Group	Total Toxicity		mg OA eq/kg	0.16	0.05 -0.27	0.016	0.032	.44%	70-120	CRM	
	Okadaic Acid	OA			0.01-0.27	0.01	0.03			CRM	
	Dinophysistoxin-1	DTX1			0.01-0.27	0.01	0.03			CRM	
	Dinophysistoxin-2	DTX2			0.01-0.27	0.01	0.03				
	Esters of OA, DTX1 and DTX2			FA-ESTERS	Method should detect this analyte directly or after hydrolysis						
Azaspiracids Group	Total Toxicity		mg AZA1 eq/kg	0.16	0.05 -0.27	0.016	0.032	.44%	70-120	CRM	
	Azaspiracid-1	AZA1			0.01 -0.27	0.01	0.03				
	Azaspiracid-2	AZA2			0.01 -0.27	0.01	0.03				
	Azaspiracid-3	AZA3			0.01 -0.27	0.01	0.03				
Brevetoxin Group	Total Toxicity		mg/kg PbTx-2 eq	0.8	0.26 - 1.34	0.08	0.16	.44%	70-120	CRM	
	Brevetoxin-1	BTX1									
	Brevetoxin-2	BTX2									
	Brevetoxin-1 derivatives ^d			devBTX1		0.01 -0.27	0.01	0.03			
	Brevetoxin-2 derivatives ^d			devBTX2		0.01 -0.27	0.01	0.03			

APPENDIX X

**PROPOSED DRAFT STANDARD FOR LIVE ABALONE AND FOR RAW FRESH CHILLED
OR FROZEN ABALONE FOR DIRECT CONSUMPTION OR FOR FURTHER
PROCESSING****(at Step 5 of the Procedure)****1. SCOPE**

This standard applies to live abalone and/or raw fresh chilled or frozen abalone of the genus *Haliotis*. Raw fresh chilled or frozen abalone may be whole or shucked with the viscera removed. The epithelium, mucous and radula may be removed. Chilling or freezing is done in such a way that essentially the characteristics of live abalone are retained. Both live and raw fresh chilled or frozen abalone may be intended for direct consumption or further processing. Part I below applies to live abalone, while Part II applies to raw fresh chilled or frozen abalone.

PART I – LIVE ABALONE**I-2 DESCRIPTION****I-2.1 Product definition**

Live abalone are products that are alive immediately prior to consumption. Presentation includes the shell.

I-2.2 Process Definition

Live abalone are harvested alive from a harvesting area or farm, and may be purged in clean sea water and/or drained prior to packaging for direct human consumption or for further processing as in II-2.2.

I-2.3 Presentation

Any presentation of the product shall be permitted provided that it:

- meets all requirements of this Standard; and
- is adequately described on the label to avoid confusing or misleading the consumer.

The abalone may be packed by weight, count, count per unit of weight or volume per package.

I-3 ESSENTIAL COMPOSITION AND QUALITY FACTORS**I-3.1 Abalone**

The abalone must be alive and possess organoleptic characteristics associated with freshness, and freedom from taint or extraneous matter, as determined by specialists familiar with the species concerned.

I-3.2 Final Product

Live abalone shall meet the requirements of this Standard when lots comply with the provisions of Section I-10. Live abalone shall be examined by the methods given in Sections I-8 and I-9.

I-4 FOOD ADDITIVES

Food additives are not permitted in live abalone.

I-5 CONTAMINANTS

I-5.1 The products covered by this Standard shall comply with the Maximum Levels of the Codex General Standard for Contaminants and Toxins in Foods and Feeds (CODEX/STAN 193-1995) and the maximum residue limits for veterinary drugs established by the Codex Alimentarius Commission.

I-5.2 Abalone from some geographical areas have been found to accumulate certain marine biotoxins. It is up to the Competent Authority (using a Risk Assessment) to determine whether a risk exists in any geographical areas under its control and if so, put in the necessary mechanisms to ensure that the part of the abalone to be consumed, meets with the marine biotoxins levels in the Standard for Live and Raw Bivalve Molluscs (CODEX STAN 292-2008). The Risk Assessments should be undertaken in accordance with the Working Principles for Risk Analysis for Food Safety for Application by Governments (CAC/GL 62-2007).

I-6 HYGIENE AND HANDLING

I-6.1 It is recommended that the products covered by provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969), the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

I-6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

I – 6.3 The final product shall be free from any foreign material that poses a threat to human health.

I-7 LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

I-7.1 The Name of the Food

The name of the food to be declared on the label shall be the common or usual name of the species of abalone in accordance with the law and custom of the country in which the food is sold and in a manner not to mislead the consumer.

I-7.1.1 There shall appear on the label, reference to the presentation (provided for in Section I-2.3-Presentation) in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation of the product to avoid misleading or confusing the consumer.

I-7.1.2 In addition to the specified labelling designations above, the usual or common trade names of the variety may be added so long as it is not misleading to the consumer in the country in which the product will be distributed.

I-7.2 Content Declaration

Live abalone shall be labelled by weight, count, volume per package or count per unit weight as appropriate to the product.

I-7.3 Storage Instructions

The label shall specify the conditions for storage and/or temperature that will maintain the product quality/viability during transportation, storage and distribution.

I-7.4 Labelling of Non-retail Containers

Information specified above shall be given either on the container or in accompanying documents, except that the name of the food, lot identification, and the name and address of the manufacturer or packer as well as storage instructions shall always appear on the container.

However, lot identification, and the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.”

The country where the product is sold can determine if the scientific name must be indicated on the label.

The durability or shelf life may be required in the country where the product is sold. Date of minimum durability may be replaced by the statement “Abalone must be alive when sold to the final consumer”.

I-8 SAMPLING, EXAMINATION AND ANALYSIS

I-8.1 Sampling

- (i) Sampling of lots for examination of the product shall be in accordance with the Codex General Guidelines on Sampling (CAC/GL 50-2004).
- (ii) Each sample shall contain a sufficient number of abalone to ensure that the sample is representative of the lot.
- (iii) The portion of the abalone to be analysed shall be the part to be consumed.

I-8.2 Sensory and Physical Examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Sections I-8.3 through I-9, and “Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories” (CAC/GL 31-1999).

I-8.3 Determination of Count per Unit Weight or Volume

When declared on the label, the count of abalone shall be determined by counting the number of abalone in the container or a representative sample thereof and dividing the count of abalone by the actual weight/volume to determine the count per unit weight or volume.

I-8.4. Determination of Biotoxins

Provision	Methodology	Principle	Type
Saxitoxin group	AOAC Official Method 2005.06 (Paralytic Shellfish Poisoning Toxins in Shellfish) four matrices and 12 toxins	LC-FL	II

[Competent authorities should use the “Performance Criteria and Principles for Marine Biotoxin Methods” when selecting appropriate methodology for determination of biotoxin levels in abalone.]

I-9 DEFINITION OF DEFECTIVES

The sample shall be considered as defective when it exhibits any of the properties defined below.

I-9.1 Foreign Matter

The presence in the sample of any matter which has not been derived from abalone, does not pose a threat to human health and is readily recognized without magnification or is present at a level determined by any method including magnification, that indicates non-compliance with good manufacturing and sanitation practices.

I-9.2 Dead or Damaged Product

Dead abalone is characterized by lack of muscle movement when touched and/or complete muscle stiffness due to the rigor mortis process setting in after death of the animal. Animals damaged to the extent that their integrity is affected, are considered to be defective. The sample is defective if more than 5% of the abalone in the sample are dead or damaged.

I-10 LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

- (i) the total number of defectives as classified according to section I-9 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5.

- (ii) the average count designation as defined in section I-8.3 is within the declared count, and the total number of samples not meeting the count designation does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5.
- (iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container;
- (iv) the essential composition and quality factors food additives, contaminants, hygiene and handling and labelling requirements of Sections I-3, I-4, I-5, I-6 and I-7 are met.

PART II – RAW FRESH CHILLED OR FROZEN ABALONE

II-2 DESCRIPTION

II-2.1 Product Definition

Raw fresh chilled or frozen whole abalone prepared for direct consumption or for further processing are products that were alive immediately prior to the commencement of freezing and/or processing and comply with Section I-2.2 relating to harvesting. They have been chilled or frozen whole or shucked with the viscera removed. The epithelium, mucous or radula may be removed. (The product is then chilled or frozen while essentially retaining the sensory characteristics of live abalone.)

[Section II-5 of this standard does not apply to processed abalone meat that has the viscera and epithelium removed.]

II-2.2 Process Definition

The product is harvested as in I-2.2 and after suitable preparation is subjected to a chilling or freezing process complying with the conditions laid down hereafter. The chilling process shall be carried out in appropriate equipment in such a way as to ensure the product shall be quickly brought down to the temperature of melting ice (with a maximum tolerance of -2°C to +4°C). The product shall be kept chilled at this temperature so as to maintain the quality during transportation, storage and distribution.

The freezing process shall be carried out in appropriate equipment in such a way that the range of maximum ice crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C or colder at the thermal centre after thermal stabilization. The product shall be kept deep frozen at -18°C or colder so as to maintain the quality during transportation, storage and distribution.

II-2.3 Presentation

Refer to I-2.3.

II-3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

II-3.1 Raw Fresh Chilled or Frozen Abalone

Raw abalone shall be of a quality fit for human consumption.

II-3.2 Glazing (for Frozen Abalone only)

If glazed, the water used for glazing or preparing glazing solutions shall be of potable quality or shall be clean sea-water. Potable water is fresh-water fit for human consumption. Standards of potability shall not be less than those contained in the latest edition of the WHO “International Guidelines for Drinking Water Quality.” Clean sea-water is sea-water which meets the same microbiological standards as potable water and is free from objectionable substances.

II-3.3 Other Ingredients

The packing medium and all other ingredients used shall be of food grade quality and conform to all applicable Codex standards.

II-3.4 Final Product

Raw fresh chilled or frozen abalone shall meet the requirements of this standard when lots examined in accordance with Sections II-8 and II-9 comply with the provisions set out in Section II-10.

II-4 FOOD ADDITIVES

For raw fresh chilled or frozen abalone any antioxidant that may be used are listed in food category 09.2.1 (Frozen fish, fish fillets, and fish products, including molluscs, crustaceans, and echinoderms) of the General Standard for Food Additives (CODEX STAN 192-1995).

II-5 CONTAMINANTS

Refer to I-5 Contaminants

II-6 HYGIENE AND HANDLING

Abalone should meet the requirements of I-6 prior to chilling/freezing. After processing they should retain visual characteristics associated with freshness, including, where relevant, shells free of dirt.

II-7 LABELLING

In addition to the provisions of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) the following specific provisions apply:

II-7.1 The Name of the Food

The name of the food to be declared on the label shall be the common or usual name of the species of abalone in accordance with the law and custom of the country in which the food is sold and in a manner not to mislead the consumer.

II-7.1.1 There shall appear on the label, reference to the presentation (provided for in Section II-2.3-Presentation) in close proximity to the name of the product in such descriptive terms that will adequately and fully describe the nature of the presentation of the product to avoid misleading or confusing the consumer.

II-7.1.2 In addition to the specified labelling designations above, the usual or common trade names of the variety may be added so long as it is not misleading to the consumer in the country in which the product will be distributed.

II-7.2 Content Declaration

Raw fresh chilled or frozen abalone shall be labelled by weight, count, count per unit weight, or volume as appropriate to the product.

Where the frozen food has been glazed, the declaration of the net weight of the food shall be exclusive of the glaze.

II-7.3 Storage Instructions

The label shall specify the conditions for storage and/or temperature that will maintain the product safety/quality during transportation, storage and distribution including date of minimum durability and date of shucking where required in the country of sale.

II-7.4 Labelling of non-retail containers

Information specified above shall be given either on the container or in accompanying documents, except that the name of the food, lot identification, and the name and address of the manufacturer or packer as well as storage instructions shall always appear on the container.

However, lot identification, and the name and address may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.”

The country where the product is sold can determine if the scientific name must be indicated on the label.

The durability or shelf life may be required in the country where the product is sold.

II-8 SAMPLING, EXAMINATION AND ANALYSIS**II-8.1 Sampling**

Refer to I-8.1

II-8.2 Sensory and Physical Examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination and in accordance with procedures elaborated in Sections II-8.3 through II-8.5 and II-9, and Guidelines for the Sensory Evaluation of Fish and Shellfish in Laboratories” (CAC/GL 31-1999).

II-8.3 Determination of Net Weight

The net weight of all sample units shall be determined by the procedures described or mentioned in sections II-8.3.1 through II-8.3.3.

II-8.3.1 Determination of Net Weight of Product Exclusive of Packaging

- (i) Remove frost and ice from outside of package;
- (ii) Weigh the unopened container;
- (iii) Open the container and remove the contents;
- (iv) Dry the empty container and weigh.
- (v) Subtract the weight of the empty container from the weight of the unopened container.

The resultant figure will be the total net weight.

II-8.3.2 Determination of Net Weight of Frozen Products not Covered by Glaze

The net weight (exclusive of packaging material) of each sample unit representing a lot shall be determined in the frozen state.

II-8.3.3 Determination of Net Weight of Frozen Products Covered by Glaze

The net weight (exclusive of packaging material) of each sample unit representing a lot shall be determined using the AOAC official method 963.18, Net Contents of Frozen Seafoods.

II-8.4. DETERMINATION OF COUNT PER UNIT WEIGHT OR VOLUME

When declared on the label, the count of abalone shall be determined by counting the numbers of abalone in the container or a representative sample thereof and dividing the count of abalone by the actual weight/volume to determine the count per unit weight or volume.

II-8.5. SAMPLE PREPARATION**II-8.5.1 Procedures for Thawing**

For frozen product, the sample is thawed by enclosing it in a film type bag and immersing in water allowing it to thaw at room temperature or in a refrigerator (at 2-6 °C). The complete thawing of the product is determined by gently squeezing the bag occasionally so as not to damage the texture of the abalone, until no hard core or ice crystals are left.

II-8.6 Determination of Biotoxins

Refer to I-8.4 Determination of Biotoxins

II-9 DEFINITION OF DEFECTIVES

The sample unit shall be considered as defective when it exhibits any of the properties defined below.

II-9.1 Deep Dehydration

Greater than 10% of the weight of the abalone in the sample exhibits excessive loss of moisture clearly shown as white or abnormal colour on the surface which masks the colour of the flesh and penetrates below the surface, and cannot be easily removed by scraping with a knife or other sharp instrument without unduly affecting the appearance of the abalone.

II-9.2 Foreign Matter

The presence in the sample of any matter which has not been derived from abalone, does not pose a threat to human health and is readily recognized without magnification or is present at a level determined by any method including magnification, that indicates non-compliance with good manufacturing and sanitation practices.

II-9.3 Odour/Flavour

Persistent and distinct objectionable odours or flavours indicative of decomposition, rancidity, or other odours or flavours unfit for food.”

II-9.4 Texture

Textural breakdown of the flesh, indicative of decomposition, characterized by a muscle structure that is mushy or paste-like.

II-10 LOT ACCEPTANCE

A lot shall be considered as meeting the requirements of this standard when:

(i) the total number of defectives as classified according to section II-9 does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5.

(ii) the average count designation as defined in section II-8.3 is within the declared count, and the total number of samples not meeting the count designation does not exceed the acceptance number (c) of the appropriate sampling plan in the General Guidelines on Sampling (CAC/GL 50-2004) with an AQL of 6.5.

(iii) the average net weight of all sample units is not less than the declared weight, provided there is no unreasonable shortage in any individual container;

(iv) the essential composition and quality factors food additives, contaminants, hygiene and handling and labelling requirements of Sections II-3, II-4, II-5, II-6 and II-7 are met.

APPENDIX XI

**PROPOSED DRAFT AMENDMENT TO THE STANDARD FOR QUICK FROZEN FISH
STICKS (NITROGEN FACTORS)**

(at Step 5/8 of the Procedure)

7.4 ESTIMATION OF FISH CONTENT

Codex-Adopted Method

AOAC Official Method 996.15 (End-Product Method)

Alternative Methods

(1) Chemical Analysis Method (Nitrogen Factor End-Product Method)

Appropriate in cases where there is reason to doubt the composition of the fish core (i.e., appears to contain non-fish ingredients).

The percentage fish content, corrected for the non-fish flesh nitrogen contributed by the carbohydrate coating, is calculated as follows.

$$\% \text{ Fish Content} = \frac{\% \text{ total nitrogen} - \% \text{ non-fish flesh nitrogen}}{\text{N factor} * } \times 100$$

*appropriate N (nitrogen) factor

The non-fish flesh nitrogen is calculated as follows:

$$\% \text{ non-fish flesh nitrogen} = \% \text{ carbohydrate} \times 0.02$$

Where the carbohydrate is calculated by difference:

$$\% \text{ carbohydrate} = 100 - (\% \text{ water} + \% \text{ fat} + \% \text{ protein} + \% \text{ ash})$$

References

Determination of nitrogen: ISO 937:1978

Determination of moisture: ISO 1442:1997

Determination of total fat: ISO 1443:1973

Determination of ash: ISO 936:1978

(2) Rapid Method Used during Production

The fish content of a fish finger (fish stick) is calculated by using the following equation

$$\% \text{ Fish Content} = \frac{\text{Weight of ingoing fish}}{\text{Weight of final product}} \times 100$$

For most products, therefore, the fish ingredient weight is that of the raw ingredient. Any figure placed or declared on a product label would be a typical quantity reflecting the producer’s normal manufacturing variations, in accordance with good manufacturing practice.”

Table: Average Nitrogen factors to be used for fish flesh used as raw material for the product

Species	Nitrogen %
<i>White fish:</i>	
Cod	2.66
Minced Cod	2.61
Coley/Saithe	2.69
European Hake	2.64
Haddock	2.72
Ling	2.78
Plaice	2.46
Alaskan Pollack	2.59
Whiting	2.68
<i>Other species:</i>	
Tilapia	2.88

note: ±10% of variation is allowed due to natural variety (e.g., state of maturity, nutritional status, season)

APPENDIX XII

PROPOSED AMENDMENT OF THE GENERIC MODEL OFFICIAL CERTIFICATE

(Proposed amendments to the explanatory notes of the Generic Model Official Certificate in the Guidelines for Design, Production, Issuance and Use of Generic Official Certificates (CAC/GL 38-2001))

15. Identification of food product(s): give the descriptive information specific to the product or products to be certified.

Where appropriate: nature of the food (or description of the commodity), commodity code (HS code), species (**both common name(s) and scientific name(s) for fish and fishery product(s)**), intended purpose, producer/manufacture, approval number of establishments (slaughterhouse, production plant, store (cold store or not)), region or compartment of origin, name of the product, lot identifier, type of packaging, number of packages, net weight per type of product.

16. Attestations:

.....

There may be other attestations covering different issues (cf. paragraph 7 of document CAC/GL 38-2001).

In case of sanitary certification of fish and fishery products, the following attestations should be used:

- 1) **The products described above originate from (an) approved establishment(s) that has been approved by, or otherwise determined to be in good regulatory standing with the competent authority in the exporting country; and**
- 2) **have been handled, prepared or processed, identified, stored and transported under a competent HACCP and sanitary programme consistently implemented and in accordance with the requirements laid down in relevant Codex codes of practice.**