

CODEX ALIMENTARIUS COMMISSION

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World Health
Organization

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REVISION TO THE CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS(CXC 52-2003)

ALIGNMENT OF CODE WITH HISTAMINE CONTROL GUIDANCE

Prepared by the EWG chairs

See Annex 1

ALIGNMENT OF CODE WITH HISTAMINE CONTROL GUIDANCE

CRD revision based on comments received at Step 3 (CL 2018/70-FH)

Note – Only those sections of the Code with proposed amendments are shown in document.

Edits shown in **bold underline** and ~~strike through~~ font.

CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS

CAC/RCP 52-2003

SECTION 2 – DEFINITIONS

2.1 General definitions

Disinfection The reduction by means of chemical agents and/or physical methods in the number of ~~micro-~~organisms **microorganisms** in the environment to a level that does not compromise food safety or suitability. **[Change needed throughout Code. Section included for this editorial change only.]** SECTION 4 – GENERAL CONSIDERATIONS FOR THE HANDLING OF FRESH FISH, SHELLFISH AND OTHER AQUATIC INVERTEBRATES

4.1 Time and temperature control

Temperature is the single most important factor affecting the rate of fish and shellfish deterioration and multiplication of micro-organisms. For species prone to scombrototoxin production, time and temperature control ~~may be~~ **is** the most effective method for ensuring food safety. It is therefore essential that fresh fish, fillets, shellfish and their products that are ~~to be~~ chilled, be **chilled rapidly and** held at a temperature as close as possible to 0 °C. **Refer to Section 9-bis for further information on control of scombrototoxin.**

SECTION 5 – HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP) AND DEFECT ACTION POINT (DAP) ANALYSIS

5.3.3.1.1 Hazards

...However, as with all foods, there are some health risks associated with the consumption of certain products, which may be increased when the catch is mishandled **during and** after harvest **(e.g. scombrototoxin)**.

SECTION 9 – PROCESSING OF FRESH, FROZEN AND MINCED FISH

...As in the further processing of fresh fish in a MAP product, or minced or frozen fish, the section labelled “Fish preparation” is used as the basis for all the other fish-processing operations (Sections **9-bis**, 10, 12, 13, 17 and 21), where appropriate.

For fish susceptible to scombrototoxin formation, refer to Section 9-bis “Harvesting, Processing, Storage and Distribution of Fish and Fishery Products at Risk for Scombrototoxin (Histamine) Formation” for information on the control of histamine, including guidance for harvest vessel operations.

9.1.1 Raw, fresh or frozen fish reception (Processing Step 1)

Potential hazards: microbiological contamination, viable parasites, biotoxins, scombrototoxin¹⁰, chemicals (including veterinary drug residues) and physical contamination.

¹⁰ Refer to Section 9-bis for scombrototoxin control guidance.

9.1.5 Washing and gutting (Processing Steps 6 and 7)

Potential hazards: microbiological contamination, biotoxins and scombrototoxin

*Potential defects: presence of viscera, bruising, off-flavours, cutting faults, **decomposition***

9.2.2 Vacuum or modified atmosphere packaging (Processing Step 11)

*Potential hazards: subsequent microbiological contamination and biotoxins, **subsequent scombrototoxin produced subsequent to packaging**, physical contamination (metal)*

Potential defects: subsequent decomposition

9.3.1 Freezing process (Processing Step 15)

Potential hazards: viable parasites, scombrotoxin

Potential defects: texture deterioration, development of rancid odours, freezer burn, decomposition

9.4.2 Washing of minced fish (Processing Step 22)

Potential hazards: microbiological contamination and scombrotoxin

Potential defects: poor colour, poor texture, excess of water, decomposition

9.4.3 Blending and application of additives and ingredients to minced fish (Processing Steps 23 and 24)

Potential hazards: physical contamination, microbiological contamination, non-approved additives and/or ingredients, scombrotoxin

Potential defects: physical contamination, incorrect addition of additives, decomposition

9.4.4 Wrapping and packaging (Processing Steps 17 and 25)

Potential hazards: microbiological contamination, scombrotoxin

Potential defects: subsequent dehydration, decomposition

SECTION 9-bis – HARVESTING, PROCESSING STORAGE AND DISTRIBUTION OF FISH AND FISHERY PRODUCTS AT RISK FOR SCOMBROTOXIN (HISTAMINE FORMATION)

[Placeholder for newly adopted histamine control guidance]

SECTION 10 – PROCESSING OF FROZEN SURIMI**10.1.1 Hazards**

If scombrotoxin-forming fish such as tuna or mackerel, or tropical reef fish that may accumulate ciguatera toxin, are utilized for surimi, appropriate controls for these hazards should be developed¹⁴.

¹⁴ Refer to Section 9-bis for scombrotoxin control guidance.

10.2.1 Raw fresh and frozen fish reception (Processing Step 1)

Potential hazards: ~~unlikely when using marine groundfish as the raw material~~ scombrotoxin

Potential defects: decomposition, protein denaturation

10.2.2 Chilled storage (Processing Step 2)

Potential hazards: ~~unlikely~~ scombrotoxin

Potential defects: protein denaturation, decomposition

10.4 Washing and dewatering process (Processing Step 10)

Potential hazards: microbiological contamination, scombrotoxin

Potential defects: decomposition, protein denaturation, residual water-soluble protein

10.5 Refining process (Processing Step 11)

Potential hazards: microbiological contamination, scombrotoxin, metal fragments

Potential defects: objectionable matter, protein denaturation, decomposition

Technical guidance:

- Temperature of the minced fish flesh in the refining process should be adequately controlled to prevent the growth of pathogenic bacteria and scombrotoxin formation.
- Product should be processed promptly to minimize possible pathogenic microbial growth and scombrotoxin formation.

10.6 Final dewatering process (Processing Step 12)

Potential hazards: microbiological contamination, scombrotoxin

Potential defects: decomposition, protein denaturation

10.7 Mixing and addition of adjuvant ingredients process (Processing Step 13)

Potential hazards: *microbiological contamination, **scombrotoxin**, metal fragments*

Potential defects: *improper use of food additives, protein denaturation, **decomposition***

Technical guidance:

- Temperature of the product in the mixing process should be adequately controlled to avoid the growth of pathogenic bacteria **and scombrotoxin formation**.
- Product should be processed promptly to minimize possible pathogenic microbial growth **and scombrotoxin formation**.

10.8 Packaging and weighing (Processing Step 14)

Potential hazards: *microbiological contamination, **scombrotoxin***

Potential defects: *foreign matter (packaging), incorrect net weight, incomplete packaging, denaturation of protein, **decomposition***

Technical guidance:

- Temperature of the product should be adequately controlled during packaging to avoid the growth of pathogenic bacteria **and scombrotoxin formation**.
- Product should be packaged promptly to minimize possible pathogenic microbial growth.
- Packaging should be conducted rapidly to minimize the risk of contamination, **pathogenic microbial growth, scombrotoxin formation**, or decomposition.

10.9 Freezing operation (Processing Step 15)

Potential hazards: *~~unlikely~~ **scombrotoxin***

Potential defects: *protein denaturation, decomposition*

Technical guidance:

- After packaging and weighing, the product should be promptly frozen to maintain the quality of the product, **and to prevent scombrotoxin formation**.
- Procedures should be established that specify maximum time limits from packaging to freezing.

10.13 Frozen storage (Processing Step 19)

Potential hazards: *~~unlikely~~ **scombrotoxin***

Potential defects: *decomposition, protein denaturation*

Technical guidance:

SECTION 11 – PROCESSING OF QUICK-FROZEN COATED FISH PRODUCTS

11.3.1 Reception

11.3.1.1 Fish

Potential hazards: *chemical, ~~and~~ biochemical **and microbiological** contamination, ~~histamine~~ **scombrotoxin**¹⁶*

Potential defects: *tainting, block irregularities, water and air pockets, packaging material, foreign matter, parasites, dehydration, decomposition*

¹⁶ Refer to Section 9-bis for scombrotoxin control guidance.

11.3.5.2. Application of additives and ingredients

Potential hazards: *foreign material, microbiological contamination, **scombrotoxin***

Potential defects: *incorrect addition of additives, **decomposition***

Technical guidance:

- The temperature of the product in the mixing process should be adequately controlled to avoid the growth of pathogenic bacteria, **and scombrotoxin formation**.

11.3.5.3 Forming

Potential hazards: foreign material (metal or plastic from machine) and/or microbiological contamination/scombrotoxin (fish mixture only)

Potential defects: poorly formed fish cores, cores subjected to too much pressure (mushy, rancid), decomposition

11.3.7.1 Wet coating

Technical guidance:

- controlled within certain parameters to ~~effect~~ **affect** the proper amount of breading pick-up.

SECTION 12 – PROCESSING OF SALTED AND DRIED SALTED FISH

This Section applies to ~~fresh,~~ **all species of** salted and dried salted fish, ~~of the~~ **The** following species, ~~all belonging to the Gadidae family, intended for human consumption~~ **have the following scientific and common names:** Cod (*Gadus morhua*), Pacific cod (*Gadus macrocephalus*), Polar cod (*Boreogadus saida*), Greenland cod (*Gadus ogac*), Saithe (*Pollachius virens*), Ling (*Molva molva*), Blue ling (*Molva dypterygia*), Tusk (*Brosme brosme*), Haddock (*Gadus aeglefinus/Melanogrammus aeglefinus*), Forkbeard (*Phycis blennoides*) and Pollock (*Pollachius pollachius*). **This section is applicable to other species, including those that are susceptible to scombrotoxin formation, are covered by this section. Measures to control scombrotoxin are not relevant for species that are not susceptible to scombrotoxin formation, such as species in the Gadidae family.**

12.1 General

Refer also to Section 9.1 for general handling prior to processing and Figure 12.1 for an example flow chart of a salted and dried salted fish-processing line. **Refer to Section 9-bis for technical guidelines for the control of scombrotoxin.**

12.2 Preparing for salting

12.2.1 Splitting, washing and rinsing (Processing Step 7)

Potential hazards: ~~unlikely~~ scombrotoxin

Potential defects: improper splitting, decomposition

12.2.4 Nobbing (Processing Step 10)

Potential hazards: ~~unlikely~~ scombrotoxin

Potential defects: remaining gut content and intestines other than roe or milt, decomposition

12.2.5 Gibbing (Processing Step 11)

Potential hazards: ~~unlikely~~ scombrotoxin

Potential defects: remaining gut content, decomposition

Technical guidance:

12.4 Salting and maturing

Salted fish should be salt-matured, sound and wholesome. The salting process, including the temperature, should be sufficiently controlled to prevent the development of *C. botulinum*, or the fish should be eviscerated prior to brining. **The temperature should also be sufficiently controlled to prevent the formation of histamine in susceptible species.**

Salting of fish either by brining, brine injection, wet-salting, dry-salting or pickling should be carried out with full understanding of their effects on the quality of the final product and should be done under strict hygienic conditions and temperature control.

Two particular conditions that can adversely affect the quality of salted fish are the occurrence of bacteria and mould. Both defects can be combated by maintaining a temperature lower than 8 °C (**ideally below 4 °C for fish that may form scombrotoxin**). Salt produced from marine sources may contain halophilic bacteria, which continue to live in the salt and salted fish. In order to minimize such microbial contamination of salted fish, previously used and/or contaminated salt should be removed from the plant.

12.4.1 Brining (Processing Step 14)

Potential hazards: viable parasites, scombrottoxins, botulinum toxin

12.4.2 Brine injection (Processing Step 15)

Potential hazards: viable parasites, scombrottoxins, injection needle fragment, botulinum toxin

12.4.3 Wet-salting (Processing Step 16)

Potential hazards: viable parasites, scombrottoxins, botulinum toxin

12.4.4 Dry-salting (Processing Step 17)

Potential hazards: viable parasites, scombrottoxins, botulinum toxin

12.4.5 Pickling (Processing Step 18)

Potential hazards: viable parasites, scombrottoxins, botulinum toxin

Potential defects: decomposition

Technical guidance:

- The amount of salt must be adjusted to the quality of the fatty (primary) fish (fat content). Salt, sugar and spices should be weighed/measured and be evenly distributed.
- Cured fatty fish should be kept in brine or pickle.
- Fatty fish should always be covered with pickle during curing.
- Pickling is primarily used for fatty fish. Under certain conditions, dry-salting of small fatty fish, such as anchovy and small herring, may be used.

12.4.6 Maturing (Processing Step 19)

Potential hazards: viable parasites, microbiological contamination, scombrottoxins, botulinum toxin

Potential defects: decomposition, rancidity and discolouring of the flesh or surface bacteria and mould

Technical guidance:

- The first part of curing period for fish that accumulate histamine should be done at temperatures between 0 °C and 5 °C to prevent growth of microbial pathogens and development of histamine.
- Fatty fish such as herring may be kept in a temperature range of 5–10 °C during the maturing period provided the salt concentration is sufficient to inhibit scombrotxin formation. The length of this period will vary from weeks to several months depending on the specific products. If the containers are to be held at lower temperatures, the maturing period will increase.

12.5.2 Drying (Processing Step 21)

Potential hazards: ~~unlikely~~ scombrotxin

12.5.3 Weighing, wrapping and packaging (Processing Step 22)

Technical guidance:

- Barrels in which fatty fish are ready to be marketed should be clean, whole and hygienic.

SECTION 13 – SMOKED FISH, SMOKE-FLAVOURED FISH AND SMOKE-DRIED FISH

13.1 Processing of Smoked Fish

This Section provides...

The recommendations made for the production of fresh fishery products in Section 9 are valid for the preparation of fish used as raw material for the production of fish products covered by this section.

For fish at risk for scombrotxin formation, the times of product exposure between refrigerated and hot smoking temperatures should be monitored to control histamine formation (refer to Section 9-bis for technical guidelines on histamine control).

If raw material...

13.1.1 Reception of raw materials

Refer to Section 9.1.1. **Refer to Section 9-bis.1 for fish susceptible to scombrototoxin.**

13.1.2 Salting

Potential Hazards: microbiological, chemical and physical contamination, scombrototoxins, presence of metal, broken needles

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

Technical guidance:

- 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 (**e.g. 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*).

13.1.3 Hanging and racking

*Potential hazards: microbiological contamination, **scombrototoxin***

*Potential defects: physical damage, drying/smoking defects due to inadequate separation, **decomposition***

13.1.4 Drying

Refer also to Section 12.5.2

*Potential hazards: microbiological contamination, physical contamination, and ~~histamine formation~~ **scombrototoxin***

Potential defects: decomposition, fungal contamination, physical contamination

Technical guidance:

- Drying should not result in prolonged exposure to ambient temperature as this may lead to unwanted microbiological growth and the formation of histamine in susceptible species.

13.1.10 Hot smoking

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

*Potential defects: physical contamination (tar, ash), poor colour, flavour and texture, **decomposition***

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, **and scombrototoxin formation in susceptible species**. Continuous monitoring devices are recommended to ensure that time and temperature conditions are met.

13.1.11 Cold smoking

*Potential hazards: chemical contamination from smoke, growth of *Clostridium botulinum*, **scombrototoxin***

*Potential defects: physical contamination (tar, ash), poor colour, flavour and texture, **decomposition***

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.

13.1.12 Cooling

Potential hazards: *microbiological contamination, scombrotoxin*

Potential defects: *poor taste and texture, decomposition*

Technical Guidance:

- Following smoking, the fish should be cooled rapidly and thoroughly to a temperature that minimizes microbiological growth over the determined shelf-life.

13.1.13 Slicing

Potential hazards: *microbiological contamination, scombrotoxin*

Potential defects: *physical contamination, poor slices, decomposition*

Technical guidance:

- The flow of products should be maintained to avoid undue accumulation of products along the processing line.

13.1.14 Packaging

Potential hazards: *microbiological, chemical and physical contamination, scombrotoxin*

Potential defects: *physical contamination, decomposition*

13.1.15 Cooling or freezing

Potential hazards: *microbiological contamination, scombrotoxin, survival of parasites*

Potential defects: *poor taste and texture, decomposition*

13.1.16 Storage

Potential hazards: *microbiological contamination, scombrotoxin*

Potential defects: *poor taste and texture, decomposition, freezer burn*

13.2 Smoke-flavoured fish

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

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

- **Temperature should be maintained during smoke flavour treatment that will prevent scombrotoxin formation.**

13.3.1 Pre-drying

Potential hazards: *microbiological and physical contamination, scombrotoxin*

Potential defects: *decomposition, physical contamination*

13.3.2 Smoke-drying

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

Potential defects: *physical contamination (filth), burnt parts, poor texture, decomposition*

SECTION 17 – PROCESSING OF CANNED FISH, SHELLFISH AND OTHER AQUATIC INVERTEBRATES

17.2.1 Hazards

A2 Scombrotoxins

Histamine

Since ~~H~~histamine is heat stable, its ~~toxicity~~ **it** remains practically intact in containers **following fish processing at high temperatures**. Good practices for the conservation and handling from capture to heat processing **retorting** are essential to prevent histamine production. **Refer to Section 9-bis for further information about histamine control**. ~~In its standards for~~ **For** some fish species, Codex adopted maximum levels for histamine **in standards**.

17.3.1.1 Fish and shellfish (Processing Step 1)

Potential hazards: chemical and biochemical contamination (DSP, PSP, scombrototoxin, heavy metals, etc.)

Potential defects: species substitution, decomposition, parasites

Technical guidance:

Refer to Section 9.1.1 (**and Section 9-bis.4.1 for scombrototoxin-forming fish**), and other relevant sections; and also:

17.3.3 Unwrapping, unpacking (Processing Steps 3 and 4)

Potential hazards: ~~unlikely~~ **scombrototoxin**

Potential defects: foreign matter, **decomposition**

Technical guidance:

- During unwrapping and unpacking operations, precautions should be taken to limit product contamination and the introduction of foreign matter into the product. To avoid microbial proliferation, waiting periods before further processing should be minimized.

17.3.5.1 Fish preparation (gutting, trimming, etc.)

Potential hazards: microbiological contamination, ~~biochemical development (histamine~~ **scombrototoxin)**

Potential defects: objectionable matter (viscera, skin, scales, etc. in certain products), off-flavours, **decomposition**, presence of bones, parasites, etc.

Technical guidance:

Refer to Sections 9.1.5 and 9.1.6, **and 9-bis** and:

17.4.1 Precooking

Potential hazards: chemical contamination (polar components of oxidized oils), microbiological ~~or~~ **biochemical (scombrototoxin) contamination, scombrototoxin**

Potential defects: water release in the final product (for products canned in oil), abnormal flavours, **decomposition**

17.4.2.1 Filling

Potential hazards: microbiological contamination **and scombrototoxin** (waiting period or, after heat processing owing to incorrect filling or defective containers)

Potential defects: incorrect weight, foreign matter, **decomposition**

17.4.3 Handling of containers after closure – staging before heat processing (Processing Step 9)

Potential hazards: microbiological contamination **and scombrototoxin** (waiting period or owing to damaged containers)

Potential defects: ~~unlikely~~, **decomposition**

SECTION 18 – PROCESSING OF FISH SAUCE

Salt is an essential ingredient in fish sauce production in order to support the growth of halophilic ~~micro~~ **micro**-organisms that produce effective fermentation, and prevent growth of bacterial pathogens and other undesirable microbial activity, yielding a high quality, safe fish sauce product.

General considerations of hazards and defects

Hazards

The raw material used in the fermentation to make fish sauce may include both freshwater and

marine fish. Some marine fish, such as mackerel, sardines or anchovies, pose a risk of scombrototoxin formation; **for these it is necessary to refer to Section 9-bis of this Code**. Fish may be contaminated with undesirable ~~micro~~ **micro**-organisms, including pathogenic bacteria, thus it is necessary to control raw material on the harvest vessel in compliance with Sections 3, ~~and 4,~~ **and 9-bis** of this Code.

Water Phase Salt concentrations of 20 percent or higher should be achieved and maintained throughout the fermentation to prevent growth and activity of undesirable ~~micro-organisms~~ **microorganisms**, including pathogens.

SECTION 20 – TRANSPORTATION

20.1 For fresh, refrigerated and frozen products

Potential hazards: ~~biochemical development (histamine~~ **scombrototoxin**~~), microbiological contamination~~

Potential defects: decomposition, physical damage, chemical contamination (fuel)

Technical guidance:

Refer to Section 9-bis.3 for fish at risk of scombrototoxin formation.

- Check product temperature before loading.

SECTION 21 – RETAIL

21.1.1 Reception of chilled products at retail

Potential hazards: microbiological contamination, chemical and physical contamination, scombrototoxin formation, *C. botulinum* toxin formation

Potential defects: spoilage (decomposition), contaminants, filth

Technical guidance:

- Product temperature should be taken from several locations in the shipment and recorded. Chilled fish, shellfish and their products should be maintained at or below 4 °C (40 °F). MAP product, if not frozen, should be maintained at or below 3 °C (38 °F).
- ~~For fish susceptible to scombrototoxin formation, retailers should measure fish internal temperatures and perform sensory examination of representative fish before accepting delivery, and retailers should ensure that fish are purchased from suppliers that use HACCP or similar systems to prevent histamine formation.~~
- **For fish susceptible to scombrototoxin formation, retailers should ensure that fish are purchased from suppliers that use HACCP or similar control systems to prevent histamine formation. In case the fish being received is likely to be susceptible to scombrototoxin formation, retailers should evaluate if fish are surrounded by ice or other cooling media, measure fish internal temperatures when appropriate, and perform sensory evaluation of representative fish samples before accepting delivery.**

ANNEX I — POTENTIAL HAZARDS ASSOCIATED WITH FRESH FISH, SHELLFISH AND OTHER AQUATIC INVERTEBRATES

1.2 Bacteria

...Examples of indigenous bacteria that may pose a health hazard are *Aeromonas hydrophila* **hydrophila**, *Clostridium botulinum*, *Vibrio parahaemolyticus*, *Vibrio cholerae*, *Vibrio vulnificus* and *Listeria monocytogenes*.

...Other species that cause foodborne illness and that have occasionally been isolated from fish are *Edwardsiella tarda*, *Plesiomonas shigelloides* **Plesiomonas shigelloides** and *Yersinia enterocolitica*.

1.5 Scombrototoxin

Scombroid intoxication, sometimes referred to as histamine poisoning **or scombrototoxin fish poisoning**, results from eating fish that have been incorrectly chilled **during and/or** after harvesting **and/or during subsequent processing and handling**. Scombrototoxin is attributed mainly to **bacteria in the Enterobacteriaceae family**, which can produce high levels of histamine and other biogenic amines in the fish muscle when products are not immediately chilled after catching **and retained in a chilled state**. The main susceptible fish are the scombroids (**Scombridae family**) such as tuna, mackerel and bonito, although it can be found in other fish families such as Clupeidae, **Engraulidae, Coryphaenidae, Pomatomidae, Scomberesocidae**. The intoxication is rarely fatal and symptoms ~~are usually~~ **while typically mild, can be severe**. Rapid refrigeration after catching and a high standard of handling during processing should prevent the development of the toxin. The toxin is not inactivated by ~~normal~~ heat processing. In addition, fish may contain toxic levels of histamine without exhibiting any of the usual sensory parameters characteristic of spoilage. **Refer to Section 9.bis for technical guidelines for control of histamine formation.**