APPENDIX 3
CANADIAN GUIDELINES FOR CHEMICAL CONTAMINANTS AND
TOXINS IN FISH AND FISH PRODUCTS

Table of levels of contaminants permitted in fish and fish products

Contaminants	Product Type	Action Level [1]
Mercury	All fish products (except swordfish, shark, fresh and frozen tuna, escolar, orange roughy and marlin)	0.5 ppm
Mercury	Swordfish, shark, fresh and frozen tuna, escolar, orange roughy and marlin	1.0 ppm
Arsenic	Fish protein concentrate	3.5 ppm
Lead	Fish protein concentrate	0.5 ppm
Fluoride	Fish protein concentrate	150 ppm
2,3,7,8 TCDD (Dioxin)	All fish products	20 ppt ***under review***
DDT and metabolites (DDD and DDE)	All fish products	5.0 ppm
PCB	All fish products	2.0 ppm ***under review***
Piperonyl butoxide	Dried Cod	1.0 ppm
Other agricultural chemicals or their derivatives	All fish products	0.1 ppm

[1] Based on contaminants level of edible weight

Notes:

Sampling: Samples to consist of a minimum of 5 units representative of the lot. Analysis may be carried out on a composite of all sample units.

Criteria for Action: A lot of fish will be considered reject if the sample value exceeds the action level. Fish or fish products exceeding these guidelines may be permitted for export if they do not violate regulations of the importing country.

Table of levels of toxins permitted in fish and fish products		
Toxins	**Product Type**	**Action Level**
Histamine [2] (Scombroid Poisoning)	Enzyme ripened products (e.g. anchovies, anchovy paste, fish sauce)	20 mg / 100 g
Histamine [2] (Scombroid Poisoning)	All other scombroid fish products (e.g. canned or fresh or frozen tuna, mackerel, mahi-mahi)	10 mg / 100 g
Saxitoxins (PSP) [3]	Molluscan shellfish (edible portion)	80 µg / 100 g
Domoic Acid (ASP) [3]	Molluscan shellfish (edible portion)	20 µg/g
Okadaic Acid (OA) + DTX1 + DTX2 + OA esters + DTX1 esters + DTX2 esters (DSP) [3]	Molluscan shellfish (edible portion)	0.2 µg / g (interim)
Pectenotoxins: PTX-1, PTX-2, PTX-3, PTX-4, PTX-6 and PTX-11	Molluscan shellfish (edible portion)	0.2 µg / g

Additional Comments:

[2] Histamine

Samples are collected according to Sampling Plan 1 (AQL 6.5) for initial inspection and Sampling Plan 2 (AQL 6.5) for reinspection. See the Sampling Policy and Procedures
Any sample exceeding 50 mg/100 g will result in the lot being rejected with no right to reinspection.
The acceptance number is that corresponding to the number for decomposition.

[3] PSP, ASP and DSP (Paralytic Shellfish Poisoning, Amnesic Shellfish Poisoning - Diarrhetic Shellfish Poisoning)

Procedures for closure of shellfish areas, and possible recall of product due to samples of shellfish containing toxin levels equal to or greater than the above action levels can be found in Chapter 11 of the Canadian Shellfish Sanitation program
The minimum acceptable sample is that which when shucked will produce 100 g of drained meats from 5 pooled sub-samples. Depending on the size of animals, the total number of shellfish required varies from 3 (geoduck) to 25 (pink scallops).

Action Levels for Additives which may have Naturally Occurring Background Levels

Additive [4]	Product Type [5]	Background Levels[6]	Amount permitted to be Added	Action Level
Nitrites	All fish and fish products (except marine mammal meat [7])	15 ppm (see note 2)	Not permitted	>15 ppm (see note 2)
Nitrates	All fish and fish products	15 ppm (see note 2)	Not permitted	>15 ppm (see note 2)
Sulphites [8]	Clams (raw and canned)	10 ppm	Not permitted	>10 ppm
Phosphates[9]	Shrimp (frozen raw, cooked and canned)	1.60 %	0.5%	>2.10%
Phosphates[9]	Scallops (raw)	1.47 %	Not permitted	>1.47 %
Phosphates[9]	Frozen fish fillets, frozen minced fish, canned seafood	1.37 %	0.5%	>1.87%
Phosphates[9]	Crab (frozen raw, canned and cooked)	1.70 %	0.5%	>2.20%
Phosphates[9]	Lobster (frozen raw, canned and cooked)	1.47 %	0.5%	>1.97%
Phosphates[9]	Surf clams (frozen raw and cooked)	1.00 %	0.5%	>1.50%
Phosphates[9]	A blend of prepared fish and prepared meat	1.37 %	0.1%	>1.47 %
Phosphates	Squid	1.10%	0.5%	>1.60%

[4] The compounds listed in this table are food additives; however some background levels may occur naturally in some foods. See Division 16 of the Food and Drug Regulations.

[5]See Division 21 of the Food and Drug Regulations.

[6] When the additive **is not** permitted, then the action level is the background level or detection limit; when the additive **is** permitted, then the action level is the background level or detection limit **plus** the permitted amount.

[7] Marine mammals, including seals are included in the definition of "fish" as per the Canadian Food and Drug Regulations. Sodium nitrite is permitted in marine mammal meats at the maximum level of 200 ppm.

[8] Calculated as sulphur dioxide.

[9] Calculated as sodium phosphate, dibasic.

Note:

1. If a processor can provide reliable data for naturally occurring background levels that are higher than those shown above, this may be considered before product action is taken.
2. Some herbs, including parsley, contain high levels of naturally occurring nitrates. This has to be considered when nitrates are detected in fish products containing herbs as an ingredient.