

## CHAPTER 3: POTENTIAL SPECIES-RELATED AND PROCESS-RELATED HAZARDS

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### INTRODUCTION

- **Purpose**

The purpose of this chapter is to identify potential food safety hazards that are species related and process related.

To assist in identifying species-related and process-related hazards, this chapter contains three tables:

- **Table 3-2, "Potential Vertebrate Species-Related Hazards,"** contains a list of potential hazards that are associated with specific species of vertebrates (species with backbones). These hazards are referred to as species-related hazards;
- **Table 3-3, "Potential Invertebrate Species-Related Hazards,"** contains a list of potential hazards that are associated with specific species of invertebrates (species without backbones). These hazards are also referred to as species-related hazards; and
- **Table 3-4, "Potential Process-Related Hazards,"** contains a list of potential hazards that are associated with specific finished fishery products, as a result of the finished product form, the package type, and the method of distribution and storage. These hazards are referred to as process-related hazards.

### NOTES:

The following should be considered when identifying seafood:

- The tables provide lists of potential hazards. You should use the tables, together with the information provided in Chapters 4 through 21, and your own expertise or that of outside experts, to determine whether the hazard is significant for your particular product or process and, if so, how it should be controlled.
- Acceptable names should be used when labeling seafood products. Refer to "[The Seafood List](#)" to determine acceptable names for species subject to interstate commerce. This Guide is not the official resource for determination of acceptable names. The hyperlink to "The Seafood List" is: <https://www.cfsanappsexternal.fda.gov/scripts/fdcc/?set=SeafoodList>.
- Some species are endangered and/or have regulatory restrictions. For information concerning endangered species, please refer to National Oceanic and Atmospheric Administration (NOAA) "[ESA Threatened & Endangered](#)" list and/or the U.S. Fish & Wildlife Services "[Endangered Species](#)". The hyperlink to NOAA's EAS Threatened & Endangered list is [Threatened and Endangered Species Directory Page | NOAA Fisheries](#). The hyperlink to the U.S. Fish and Wildlife Services "Endangered Species" is [Endangered Species | Home Page \(fws.gov\)](#).
- **Species substitution**

Illicit substitution of one species for another may constitute economic fraud and/or misbranding

violations of the Federal Food, Drug, and Cosmetic Act. Furthermore, species substitution may cause potential food safety hazards to be overlooked or misidentified by processors or end users, as shown in Table 3-1, "The Effect of Misbranding through Species Substitution on the Identification of Potential Species-Related Hazards." These examples are based on actual incidents of species substitution or misbranding.

**TABLE 3-1.**

**THE EFFECT OF MISBRANDING THROUGH SPECIES SUBSTITUTION ON THE IDENTIFICATION OF POTENTIAL SPECIES-RELATED HAZARDS**

<b>Actual Market Name of Product:</b>	<b>Potential Species-Related Hazards Associated with the Actual Product:</b>  <b>(Table 3-2)</b>	<b>Product Inappropriately Labeled as:</b>	<b>Potential Species-Related Hazards that would be Identified Based on Inappropriate Species Labeling:</b>  <b>(Table 3-2)</b>
Escolar	Gempylid Fish Poisoning; Scombrototoxin (Histamine)	Sea Bass	Parasites
Puffer Fish	Tetrodotoxin (Pufferfish Poisoning); Paralytic Shellfish Poisoning	Monkfish	Parasites
Spanish Mackerel	Parasites; Scombrototoxin (Histamine); Ciguatera Fish Poisoning	Kingfish	None
Basa	Environmental Chemicals; Aquaculture Drugs.	Grouper	Parasites; Ciguatera Fish Poisoning
Grouper	Parasites; Ciguatera Fish Poisoning	Cod	Parasites

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
AHOLEHOLE	<i>Kuhlia</i> spp.					
ALEWIFE or RIVER HERRING	<i>Alosa pseudoharengus</i>			✓	✓	
ALFONSINO	<i>Beryx</i> spp.					
	<i>Centroberyx</i> spp.					
ALLIGATOR	<i>Alligator mississippiensis</i>				✓	
	<i>Alligator sinensis</i>				✓	
ALLIGATOR, aquacultured	<i>Alligator mississippiensis</i>				✓	✓
	<i>Alligator sinensis</i>				✓	✓
AMBERJACK	<i>Seriola dumerili</i>		CFP	✓		
	<i>S. rivoliana</i>		CFP	✓		
	<i>S.</i> spp.			✓		
AMBERJACK or YELLOWTAIL	<i>Seriola lalandi</i>			✓		
AMBERJACK or YELLOWTAIL, aquacultured	<i>Seriola lalandi</i>	✓ <sup>4</sup>		✓	✓	✓
AMBERJACK or BURI, aquacultured	<i>Seriola quinqueradiata</i>			✓	✓	✓
ANCHOVY <sup>12</sup>	<i>Anchoa</i> spp.	✓	ASP <sup>5</sup>	✓		
	<i>Anchoviella</i> spp.	✓	ASP <sup>5</sup>	✓		
	<i>Cetengraulis mysticetus</i>	✓	ASP <sup>5</sup>	✓		
	<i>Engraulis</i> spp.	✓	ASP <sup>5</sup>	✓		
	<i>Stolephorus</i> spp.	✓	ASP <sup>5</sup>	✓		
ANGELFISH	<i>Holacanthus</i> spp.					
	<i>Pomacanthus</i> spp.					
ARGENTINE QUEENFISH	<i>Argentina elongata</i>					

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
ATKA MACKEREL	<i>Pleurogrammus monopterygius</i>	✓				
BARRACUDA	<i>Sphyraena barracuda</i>		CFP		✓	
	<i>S. jello</i>		CFP		✓	
	<i>S. spp.</i>				✓	
BARRAMUNDI	<i>Lates calcarifer</i>				✓	
BARRAMUNDI, aquacultured	<i>Lates calcarifer</i>				✓	✓
BASA or BOCOURTI	<i>Pangasius bocourti</i>				✓	
BASA or BOCOURTI, aquacultured	<i>Pangasius bocourti</i>				✓	✓
BASS	<i>Ambloplites spp.</i>				✓	
	<i>Micropterus spp.</i>				✓	
	<i>Morone spp.</i>				✓	
	<i>Stereolepis gigas</i>				✓	
	<i>Synagrops bellus</i>				✓	
BASS, aquacultured	<i>Centropristis spp.</i>				✓	✓
	<i>Morone spp.</i>				✓	✓
BASS, SEA	<i>Acanthistius brasilianus</i>	✓				
	<i>Centropristis spp.</i>	✓				
	<i>Dicentrarchus labrax</i>	✓				
	<i>Lateolabrax japonicus</i>	✓				

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
BASS, SEA (cont.)	<i>Paralabrax</i> spp.	✓				
	<i>Paranthias furcifer</i>	✓				
	<i>Polyprion americanus</i>	✓				
	<i>P. oxygeneios</i>	✓				
	<i>P. yanezi</i>	✓				
BASS, SEA, aquacultured	<i>Dicentrarchus labrax</i>	✓			✓	✓
BATA	<i>Labeo bata</i>				✓	
BIGEYE	<i>Priacanthus arenatus</i>					
	<i>Pristigenys alta</i>					
BLUEFISH	<i>Pomatomus saltatrix</i>			✓	✓	
BLUEGILL	<i>Lepomis macrochirus</i>				✓	
BLUENOSE	<i>Hyperoglyphe antarctica</i>					
BOMBAY DUCK	<i>Harpadon nehereus</i>				✓	
BONITO	<i>Cybiosarda elegans</i>			✓		
	<i>Gymnosarda unicolor</i>			✓		
	<i>Orcynopsis unicolor</i>			✓		
	<i>Sarda</i> spp.			✓		
BOWFIN and roe	<i>Amia calva</i>				✓	
BREAM	<i>Abramis brama</i>					
	<i>Acanthopagrus</i> spp.					
	<i>Argyrops</i> spp.					
	<i>Gymnocranius grandoculis</i>					

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
BREAM (cont.)	<i>Monotaxis</i> spp.					
	<i>Sparus aurata</i>					
	<i>Wattsia</i> spp.					
BREAM, aquacultured	<i>Abramis brama</i>				✓	✓
BREAM or BOGUE	<i>Boops boops</i>					
BREAM, THREADFIN	<i>Nemipterus japonicus</i>					
BUFFALOFISH	<i>Ictiobus</i> spp.				✓	
BULLHEAD	<i>Ameiurus</i> spp.				✓	
BURBOT	<i>Lota lota</i>				✓	
BUTTERFISH	<i>Odax pullus</i>				✓	
	<i>Peprilus</i> spp.				✓	
	<i>Pampus cinereus</i>				✓	
CAPARARI	<i>Pseudoplatystoma tigrinum</i>				✓	
CAPELIN and roe	<i>Mallotus villosus</i>	✓				
CARP	<i>Barbonymus</i> spp.				✓	
	<i>Carassius carassius</i>				✓	
	<i>Cyprinus carpio</i>				✓	
	<i>Hypophthalmichthys molitrix</i>				✓	
	<i>H. nobilis</i>				✓	
CARP, aquacultured	<i>Carassius carassius</i>				✓	✓
	<i>Cyprinus carpio</i>				✓	✓

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
CARP, aquacultured (cont.)	<i>Hypophthalmichthys molitrix</i>				✓	✓
	<i>H. nobilis</i>				✓	✓
CASCARUDO	<i>Callichthys callichthys</i>				✓	
CATFISH	<i>Ameiurus catus</i>				✓	
	<i>Ictalurus</i> spp.				✓	
	<i>Pylodictis oliveris</i>				✓	
CATFISH, aquacultured	<i>Ictalurus</i> spp.				✓	✓
CHAR	<i>Salvelinus alpinus</i>				✓	
CHAR, aquacultured	<i>Salvelinus alpinus</i>				✓	✓
CHARACIN	<i>Leporinus obtusidens</i>				✓	
CHARAL	<i>Chirostoma jordani</i>					
CHIMAERA	<i>Harriota raleighana</i>					
	<i>Hydrolagus</i> spp.					
CHIRING	<i>Apocryptes bato</i>					
CHUB	<i>Coregonus kiyi</i>				✓	
	<i>Kyphosus</i> spp.				✓	
	<i>Semotilus atromaculatus</i>				✓	
CISCO or CHUB	<i>Coregonus alpenae</i>				✓	
	<i>C. reighardi</i>				✓	
	<i>C. zenithicus</i>				✓	
CISCO or TULLIBEE	<i>Coregonus artedi</i>				✓	

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
CLARIAS FISH or WALKING CLARIAS FISH	<i>Clarias</i> spp.				✓	
CLARIAS FISH or WALKING CLARIAS FISH, or CLARESSE, aquacultured	<i>Clarias gariepinus</i> x <i>Clarias macrocephalus</i>				✓	✓
	<i>C. spp.</i>				✓	✓
	<i>Heterobranchius longifilis</i> x <i>Clarias gariepinus</i>				✓	✓
COBIA	<i>Rachycentron canadum</i>	✓				
COBIA, aquacultured	<i>Rachycentron canadum</i>	✓			✓	✓
COD	<i>Arctogadus</i> spp.	✓				
	<i>Boreogadus saida</i>	✓				
	<i>Eleginus gracilis</i>	✓				
	<i>Gadus</i> spp.	✓				
COD or ALASKA COD	<i>Gadus macrocephalus</i>	✓				
COD, MORID	<i>Lotella rhacina</i>	✓				
	<i>Mora moro</i>	✓				
	<i>Pseudophycis barbata</i>	✓				
	<i>P. spp.</i>	✓				
COD, aquacultured	<i>Gadus morhua</i>				✓	✓
COROATA	<i>Platynemachthys notatus</i>	✓			✓	



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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
CORVINA	<i>Cilus gilberti</i>	✓				
	<i>Micropogonias undulates</i>	✓				
CRAPPIE	<i>Pomoxis</i> spp.				✓	
CROAKER	<i>Argyrosomus</i> spp.				✓	
	<i>Bairdiella</i> spp.				✓	
	<i>Cheilotrema saturnum</i>				✓	
	<i>Genyonemus lineatus</i>				✓	
	<i>Micropogonias</i> spp.				✓	
	<i>Nebris microps</i>				✓	
	<i>Nibea</i> spp.				✓	
	<i>Odontoscion dentex</i>				✓	
	<i>Pachypops</i> spp.				✓	
	<i>Pachyurus</i> spp.				✓	
	<i>Paralonchurus</i> spp.				✓	
	<i>Plagioscion</i> spp.				✓	
	<i>Pseudotolithus</i> spp.				✓	
	<i>Pterolithus</i> spp.				✓	
	<i>Roncador stearnsii</i>				✓	
<i>Umbrina roncadior</i>				✓		

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
CROAKER or CORVINA	<i>Cynoscion</i> spp.				✓	
CROAKER or SHADEFISH	<i>Argyrosomus regius</i>				✓	
CROAKER or YELLOWFISH	<i>Larimichthys polyactis</i>				✓	
CROCODILE	<i>Crocodylus johnsoni</i>	✓				
	<i>Crocodylus moreletii</i>	✓				
	<i>Crocodylus novaeguineae</i>	✓				
	<i>Crocodylus niloticus</i>	✓				
	<i>Crocodylus porosus</i>	✓				
CROCODILE, aquacultured	<i>Crocodylus niloticus</i>	✓				✓
	<i>Crocodylus porosus</i>	✓				✓
CURIMBATA or GURAMATA	<i>Prochilodus lineatus</i>					
CUSK	<i>Brosme brosme</i>					
CUSK-EEL	<i>Brotula clarkae</i>					
	<i>Lepophidium</i> spp.					
CUTLASSFISH	<i>Aphanopus carbo</i>					
CUTLASSFISH	<i>Lepidopus caudatus</i>					
CUTLASSFISH	<i>Trichiurus</i> spp.					
DACE	<i>Rhinichthys</i> spp.				✓	
DACE, aquacultured	<i>Rhinichthys</i> spp.				✓	✓
DORAB	<i>Chirocentrus dorab</i>					
DORY	<i>Cyttus novaezealandiae</i>					
	<i>Zenopsis</i> spp.					
	<i>Zeus</i> spp.					
DRIFTFISH	<i>Hyperoglyphe</i> spp.					

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
DRUM	<i>Collichthys</i> spp.				✓	
	<i>Equetus punctatus</i>					
	<i>Larimus</i> spp.				✓	
	<i>Pogonias cromis</i>				✓	
	<i>Stellifer</i> spp.				✓	
	<i>Totoaba macdonaldi</i>				✓	
	<i>Umbrina coroides</i>				✓	
DRUM or CUBBYU	<i>Pareques umbrosus</i>				✓	
DRUM, FRESHWATER	<i>Aplodinotus grunniens</i>				✓	
DRUM or MEAGRE	<i>Argyrosomus regius</i>				✓	
DRUM or QUEENFISH	<i>Seriphus politus</i>				✓	
DRUM or REDFISH	<i>Sciaenops ocellatus</i>				✓	
DRUM or REDFISH, aquacultured	<i>Sciaenops ocellatus</i>				✓	✓
EEL	<i>Anguilla anguilla</i>		IHT			
	<i>A. spp.</i>					
EEL, aquacultured	<i>Anguilla anguilla</i>		IHT		✓	✓
	<i>A. australis</i>				✓	✓
	<i>A. dieffenbachii</i>				✓	✓
	<i>A. japonica</i>				✓	✓
EEL, CONGER	<i>Ariosoma balearicum</i>				✓	
	<i>Conger conger</i>		IHT			

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
EEL, CONGER (cont.)	<i>Conger</i> spp.	✓			✓	
	<i>Gnathopis cinctus</i>				✓	
	<i>Paraconger caudilimbatus</i>				✓	
	<i>Rhynchoconger</i> spp.				✓	
EEL, FRESHWATER	<i>Anguilla rostrata</i>				✓	
EEL, FRESHWATER, aquacultured	<i>Anguilla rostrata</i>				✓	✓
EEL, MORAY	<i>Gymnothorax funebris</i>		CFP			
	<i>Lycodontis javanicus</i>		CFP			
	<i>Muraena helena</i>		IHT			
	<i>Muraena retifera</i>		CFP			
EEL, SPINY	<i>Notacanthus chemnitzii</i>					
EELPOUT	<i>Zoarces americanus</i>					
	<i>Z. viviparus</i>	✓				
ELEPHANT FISH	<i>Callorhynchus millii</i>					
EMPEROR	<i>Lethrinus</i> spp.		CFP			
ESCOLAR or OILFISH	<i>Lepidocybium flavobrunneum</i>		GFP	✓		
	<i>Ruvettus pretiosus</i>		GFP	✓		
FEATHERBACK	<i>Notopterus notopterus</i>					
FLATHEAD	<i>Platycephalus conatus</i>					
FLATWHISKERED FISH	<i>Pinirampus pinirampu</i>				✓	
FLOUNDER <sup>15</sup>	<i>Ancylosetta dilecta</i>	✓			✓ <sup>1</sup>	
	<i>Arnoglossus scapha</i>	✓			✓ <sup>1</sup>	
	<i>Bothus</i> spp.	✓			✓ <sup>1</sup>	

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FLOUNDER <sup>15</sup> (cont.)	<i>Chascanopsetta crumenalis</i>	✓			✓ <sup>1</sup>	
	<i>Cleisthenes pinetorum</i>	✓			✓ <sup>1</sup>	
	<i>Colistium</i> spp.	✓			✓ <sup>1</sup>	
	<i>Cyclopsetta chittendeni</i>	✓			✓ <sup>1</sup>	
	<i>Hippoglossina oblonga</i>	✓			✓ <sup>1</sup>	
	<i>Hippoglossoides robustus</i>	✓			✓ <sup>1</sup>	
	<i>Limanda ferruginea</i>	✓			✓ <sup>1</sup>	
	<i>Liopsetta glacialis</i>	✓			✓ <sup>1</sup>	
	<i>Microstomus achne</i>	✓			✓ <sup>1</sup>	
	<i>Paralichthys albigutta</i>	✓			✓ <sup>1</sup>	
	<i>P. olivaceus</i>	✓			✓ <sup>1</sup>	
	<i>P. patagonicus</i>	✓			✓ <sup>1</sup>	
	<i>P. squamilentus</i>	✓			✓ <sup>1</sup>	
	<i>Pelotretis flavilatus</i>	✓			✓ <sup>1</sup>	
	<i>Peltorhampus novaezeelandiae</i>	✓			✓ <sup>1</sup>	
	<i>Platichthys</i> spp.	✓			✓ <sup>1</sup>	
	<i>Pseudorhombus</i> spp.	✓			✓ <sup>1</sup>	
	<i>Reinhardtius evermanni</i>	✓			✓ <sup>1</sup>	
	<i>Rhombosolea</i> spp.	✓			✓ <sup>1</sup>	

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		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
FLOUNDER <sup>15</sup> (cont.)	<i>Samariscus triocellatus</i>	✓			✓ <sup>1</sup>	
	<i>Scophthalmus</i> spp.	✓			✓ <sup>1</sup>	
FLOUNDER <sup>15</sup> , aquacultured	<i>Ancylopsetta dilecta</i>	✓ <sup>4</sup>			✓	✓
	<i>Arnoglossus scapha</i>	✓ <sup>4</sup>			✓	✓
	<i>Bothus</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Chascanopsetta crumenalis</i>	✓ <sup>4</sup>			✓	✓
	<i>Cleisthenes pinetorum</i>	✓ <sup>4</sup>			✓	✓
	<i>Colistium</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Cyclopsetta chittendeni</i>	✓ <sup>4</sup>			✓	✓
	<i>Hippoglossoides robustus</i>	✓ <sup>4</sup>			✓	✓
	<i>Limanda ferruginea</i>	✓ <sup>4</sup>			✓	✓
	<i>Liopsetta glacialis</i>	✓ <sup>4</sup>			✓	✓
	<i>Microstomus achne</i>	✓ <sup>4</sup>			✓	✓
	<i>Paralichthys</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Pelotretis flavilatus</i>	✓ <sup>4</sup>			✓	✓
	<i>Peltorhampus novaezeelandiae</i>	✓ <sup>4</sup>			✓	✓
<i>Pseudorhombus</i> spp.	✓ <sup>4</sup>			✓	✓	
<i>Reinhardtius evermanni</i>	✓ <sup>4</sup>			✓	✓	
<i>Rhombosolea</i> spp.	✓ <sup>4</sup>			✓	✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup>	Natural Toxin <sup>13</sup>	Scombrototoxin (Histamine)	Environmental Chemical	Aquaculture Drug
		Hazards	Hazards	Hazards	Hazards	Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
FLOUNDER <sup>15</sup> , aquacultured (cont.)	<i>Samariscus triocellatus</i>	✓ <sup>4</sup>			✓	✓
	<i>Scophthalmus</i> spp.	✓ <sup>4</sup>			✓	✓
FLOUNDER or DAB	<i>Limanda limanda</i>	✓			✓ <sup>1</sup>	
	<i>L. proboscidea</i>	✓			✓ <sup>1</sup>	
	<i>L. punctatissima</i> <sup>7</sup>	✓			✓ <sup>1</sup>	
FLOUNDER or FLUKE	<i>Paralichthys dentatus</i>	✓			✓ <sup>1</sup>	
	<i>P. flesus</i>	✓			✓ <sup>1</sup>	
	<i>P. lethostigma</i>	✓			✓ <sup>1</sup>	
	<i>P. microps</i>	✓			✓ <sup>1</sup>	
FLOUNDER, ARROWTOOTH	<i>Atheresthes stomias</i> <sup>7</sup>	✓				
FLOUNDER OR CALIFORNIA FLOUNDER	<i>Paralichthys californicus</i>	✓				
FLYINGFISH and roe	<i>Cypselurus</i> spp.					
	<i>Exocoetus</i> spp.					
	<i>Fodiator acutus</i>					
	<i>Hirundichthys</i> spp.					
	<i>Oxyporhamphus micropterus</i>					
	<i>Parexocoetus brachypterus</i>					
	<i>Prognichthys gibbifrons</i>					
FROG	<i>Rana</i> spp.	✓			✓	
FROG, aquacultured	<i>Rana</i> spp.	✓			✓	✓
GAR	<i>Lepisosteus</i> spp.				✓	
GEMFISH	<i>Epinnula magistralis</i>					
GEMFISH	<i>Nesiarchus nasutus</i>					

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
GEMFISH or BARRACOUTA	<i>Rexea solandri</i>					
	<i>Thyrsites atun</i>					
GEMFISH or CABALLA	<i>Thyrsites lepidopoides</i>					
GILLBACKER or GILLEYBAKA or WHISKERFISH <sup>8</sup>	<i>Sciades parkeri</i> <sup>7</sup>					
GOATFISH	<i>Mulloidichthys</i> spp.					
	<i>M. vanicolenis</i>					
	<i>Mullus auratus</i>					
	<i>Parupeneus</i> spp.					
	<i>Pseudupeneus</i> spp.					
	<i>Upeneichthys lineatus</i>					
	<i>Upeneus</i> spp.					
GOBY	<i>Neogobius melanostomus</i>				✓	
GRAYLING	<i>Thymallus arcticus</i>				✓	
GREENBONE	<i>Odax pullus</i>					
GREENLAND TURBOT	<i>Reinhardtius hippoglossoides</i>	✓				
GREENLING	<i>Hexagrammos</i> spp.					
GRENADIER	<i>Coryphaenoides</i> spp.					
	<i>Lepidorhynchus denticulatus</i>					
	<i>Macruronus</i> spp.					
	<i>Nezumia bairdii</i>					
	<i>Trachyrhynchus</i> spp.					
GROUPER	<i>Anyperodon</i> spp.	✓				
	<i>Caprodon schlegelii</i>	✓				
	<i>Cephalopholis argus</i>	✓	CFP			
	<i>C. miniata</i>	✓	CFP			
	<i>C. spp.</i>	✓	CFP			



**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
GROUPER (cont.)	<i>Dermatolepis inermis</i>	✓	CFP			
	<i>Diplectrum formosum</i>	✓				
	<i>Epinephelus fuscoguttatus</i>	✓	CFP			
	<i>E. lanceolatus</i>	✓	CFP			
	<i>E. morio</i>	✓	CFP			
	<i>E. spp.</i>	✓	CFP			
	<i>Mycteroperca bonaci</i>	✓	CFP			
	<i>M. spp.</i>	✓	CFP			
	<i>M. venenosa</i>	✓	CFP			
	<i>Variola louti</i>	✓	CFP			
	<i>V. spp.</i>	✓	CFP			
	GROUPER or CORAL GROUPER	<i>Plectropomus spp.</i>	✓	CFP		
GROUPER or GAG	<i>Mycteroperca microlepis</i>	✓	CFP			
GROUPER or HIND	<i>Epinephelus guttatus</i>	✓	CFP			
GROUPER or JEWFISH	<i>Epinephelus itajara</i>	✓	CFP			
GROUPER or SCAMP	<i>Mycteroperca phenax</i>	✓	CFP			
GROUPER, ORANGE -SPOTTED, aquacultured	<i>Epinephelus coioides</i>				✓	✓
GROUPER, MALABAR, aquacultured	<i>Epinephelus malabaricus</i>				✓	✓
GROUPER, aquacultured	<i>Epinephelus spp.</i>				✓	✓

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
GRUNION	<i>Leuresthes tenuis</i>					
GRUNT	<i>Anisotremus interruptus</i>					
	<i>Conodon nobilis</i>					
	<i>Haemulon</i> spp.					
	<i>Orthopristis chrysoptera</i>					
	<i>Pomadasys crocro</i>					
GRUNT or CATALINA	<i>Anisotremus taeniatus</i>					
GRUNT or MARGATE	<i>Anisotremus surinamensis</i>					
	<i>Haemulon album</i>					
GRUNT or SWEETLIPS	<i>Plectorhinchus</i> spp.					
HADDOCK	<i>Melanogrammus aeglefinus</i>					
HAKE	<i>Urophycis</i> spp.					
HALIBUT	<i>Hippoglossus</i> spp.	✓				
HALIBUT, aquacultured	<i>Hippoglossus</i> spp.	✓ <sup>4</sup>			✓	✓
HAMLET, MUTTON	<i>Alphesthes afer</i>					
HERRING <sup>12</sup>	<i>Alosa</i> spp.	✓		✓	✓	
	<i>Etrumeus teres</i>	✓		✓	✓	
	<i>Harengula thrissina</i>	✓		✓	✓	
	<i>Ilisha</i> spp.	✓		✓	✓	
	<i>Opisthopterus tardoore</i>	✓		✓	✓	
	<i>Pellona ditchela</i>			✓	✓	
HERRING or SEA HERRING or SILD <sup>12</sup>	<i>Clupea</i> spp.	✓		✓		
HERRING or SEA HERRING or SILD <sup>12</sup> roe	<i>Clupea</i> spp.	✓				
HERRING, THREAD <sup>12</sup>	<i>Opisthonema</i> spp.				✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
HIND	<i>Epinephelus adscensionis</i>	✓	CFP	✓		
	<i>E. drummondhayi</i>	✓				
	<i>E. guttatus</i>	✓	CFP			
HOGFISH	<i>Lachnolaimus maximus</i>	✓	CFP			
HORSE MACKEREL or SCAD	<i>Trachurus trachurus</i>	✓		✓		
JACK	<i>Carangoides bartholomaei</i>	✓	CFP	✓		
	<i>Caranx ignobilis</i>	✓	CFP	✓		
	<i>C. latus</i>	✓	CFP	✓		
	<i>C. lugubris</i>	✓	CFP	✓		
	<i>C. melampygus</i>	✓	CFP	✓		
	<i>C. ruber</i>	✓	CFP	✓		
	<i>C. spp.</i>	✓	CFP	✓		
	<i>Oligoplites saurus</i>	✓	CFP	✓		
	<i>Selene spp.</i>	✓		✓		
	<i>Urapsis secunda</i>	✓		✓		
JACK or BLUE RUNNER	<i>Caranx crysos</i>	✓	CFP	✓		
JACK or CREVALLE	<i>Alectis indicus</i>	✓		✓		
JACK or RAINBOW RUNNER	<i>Elagatis bipinnulata</i>	✓	CFP	✓		
JACK or ROOSTERFISH	<i>Nematistius pectoralis</i>	✓		✓		

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
JACKSMELT or SILVERSIDE	<i>Antherinopsis californiensis</i>		ASP			
JOBFISH or SNAPPER	<i>Aphareus</i> spp.	✓	CFP			
	<i>Aprion</i> spp.	✓	CFP			
	<i>Pristipomoides</i> spp.	✓	CFP			
KAHAWAI	<i>Arripis</i> spp.	✓		✓		
KINGFISH <sup>6</sup>	<i>Menticirrhus littoralis</i>		ASP			
	<i>M.</i> spp.					
KINGKLIP	<i>Genypterus</i> spp.					
LADYFISH	<i>Elops</i> spp.					
LING	<i>Molva</i> spp.					
LING, MEDITERRANEAN	<i>Molva macrophthalma</i>					
LINGCOD	<i>Ophiodon elongatus</i>					
LIZARDFISH	<i>Synodus</i> spp.					
LOACH	<i>Somileptus gongota</i>					
LIONFISH	<i>Pterois miles</i>		CFP <sup>14</sup>			
	<i>P. volitans</i>		CFP <sup>14</sup>			
LUMPFISH roe	<i>Cyclopterus lumpus</i>					
MACKEREL	<i>Gasterochisma melampus</i>	✓		✓		
	<i>Grammatorcynus</i> spp.	✓		✓		
	<i>Rastrelliger kanagurta</i>	✓		✓		
	<i>Scomber scombrus</i>	✓	PSP	✓		
MACKEREL, ATKA	<i>Pleurogrammus monopterygius</i>	✓				
MACKEREL, CHUB	<i>Scomber</i> spp.	✓		✓		
MACKEREL, JACK	<i>Trachurus</i> spp.	✓		✓		

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
MACKEREL, SPANISH	<i>Scomberomorus</i> spp.	✓		✓		
MACKEREL, SPANISH or CERO	<i>Scomberomorus regalis</i>	✓	CFP	✓		
MACKEREL, SPANISH or KING	<i>Scomberomorus cavalla</i>	✓	CFP	✓		
MACKEREL, SPANISH or NARROW-BARRED	<i>Scomberomorus commerson</i>		CFP	✓		
MAHI-MAHI	<i>Coryphaena</i> spp.			✓		
MAHI-MAHI, aquacultured	<i>Coryphaena</i> spp.			✓	✓	✓
MARLIN	<i>Makaira</i> spp.			✓		
	<i>Tetrapturus</i> spp.			✓		
MENHADEN	<i>Brevoortia partonus</i>		ASP	✓		
	<i>B.</i> spp.			✓ <sup>9</sup>	✓ <sup>10</sup>	
	<i>Ethmidium maculatum</i>			✓ <sup>9</sup>	✓ <sup>10</sup>	
MILKFISH	<i>Chanos chanos</i>			✓	✓	
MILKFISH, aquacultured	<i>Chanos chanos</i>			✓	✓	✓
MONKFISH	<i>Lophius</i> spp.	✓				
MORWONG	<i>Aplodactylus arctidens</i>					
	<i>Cheilodactylus</i> spp.					
	<i>Goniistius</i> spp.					
	<i>Nemadactylus</i> spp.					
MULLET	<i>Agonostomus monticola</i>	✓			✓	
	<i>Aldrichetta forsteri</i>	✓			✓	
	<i>Crenimugil crenilabis</i>	✓			✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
MULLET (cont.)	<i>Mugil cephalus</i>	✓			✓	
	<i>M. curerna</i>	✓	ASP			
	<i>M. spp.</i>	✓			✓	
	<i>M. thoburni</i>	✓			✓	
	<i>Mullus spp.</i>	✓			✓	
MUSKELLUNGE	<i>Esox masquinongy</i>				✓	
NILE PERCH	<i>Lates niloticus</i>				✓	
NILE PERCH, aquacultured	<i>Lates niloticus</i>				✓	✓
OPAH	<i>Lampris guttatus</i>					
OPALEYE	<i>Girella nigricans</i>					
OREO DORY <sup>12</sup>	<i>Allocyttus niger</i>					
	<i>Allocyttus spp.</i>		GFP			
	<i>Neocyttus spp.</i>		GFP			
	<i>Oreosoma spp.</i>		GFP			
	<i>Pseudocyttus spp.</i>		GFP			
OSCAR	<i>Astronotus ocellatus</i>				✓	
OSCAR, aquacultured	<i>Astronotus ocellatus</i>				✓	✓
PACU	<i>Myleus pacu</i>					
PADDLEFISH and roe	<i>Polyodon spp.</i>				✓	
PADDLEFISH and roe, aquacultured	<i>Polyodon spp.</i>				✓	✓
PANGASIIUS, GIANT	<i>Pangasius gigas</i>				✓	
	<i>P. sanitwongsei</i>				✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
PANGASIOUS SHORTBARBEL	<i>Pangasius micronemus</i>				✓	
PARROTFISH	<i>Bolbometopon</i> spp.					
	<i>Chlorurus gibbus</i>		CFP <sup>2</sup>			
	<i>Scarus coeruleus</i>		CFP			
	<i>S. taeniopterus</i>		CFP			
	<i>Sparisoma chrysopterus</i>		CFP			
	<i>S. viride</i>		CFP			
PATAGONIAN TOOTHFISH or CHILEAN SEABASS	<i>Dissostichus eleginoides</i>	✓				
PATAGONIAN TOOTHFISH or CHILEAN SEABASS, aquacultured	<i>Dissostichus eleginoides</i>				✓	✓
PERCH	<i>Hermosilla azurea</i>				✓	
	<i>Perca fluviatilis</i>				✓	
PERCH, LAKE or YELLOW	<i>Perca flavescens</i>				✓	
PERCH, NILE	<i>Lates niloticus</i>				✓	
PERCH, NILE, aquacultured	<i>Lates niloticus</i>				✓	✓
PERCH, OCEAN or ROCKFISH	<i>Sebastes</i> spp.	✓				
PERCH, PILE	<i>Rhacochilus vacca</i>				✓	
PERCH, SILVER	<i>Bairdiella chrysoura</i>				✓	
PERCH, WHITE	<i>Morone americana</i>				✓	
PICAREL	<i>Spicara maena</i>				✓	
PICKEREL	<i>Esox</i> spp.				✓	
PIKE	<i>Esox lucius</i>				✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
PILCHARD or SARDINE	<i>Sardina pilchardus</i>			✓		
	<i>Sardinops</i> spp.		ASP <sup>5</sup>	✓		
PIRAMUTABA or LAULAO FISH <sup>8</sup>	<i>Brachyplatystoma vaillantii</i>				✓	
PLAICE	<i>Hippoglossoides platessoides</i>	✓				
	<i>Pleuronectes platessa</i>	✓				
	<i>P. quadrituberculatus</i>	✓				
POLLOCK	<i>Pollachius pollachius</i>	✓				
	<i>P. virens</i>	✓				
POLLOCK or WALLEYE POLLOCK	<i>Gadus chalcogrammus</i> <sup>7</sup>	✓				
POMFRET	<i>Brama</i> spp.					
	<i>Parastromateus</i> spp.					
	<i>Taractes rubescens</i>					
POMPANO	<i>Alectis ciliaris</i>		CFP			
	<i>Parastromateus niger</i>					
	<i>Trachinotus</i> spp.					
POMPANO, aquacultured	<i>Trachinotus carolinus</i>				✓	✓
POMPANO or PERMIT	<i>Trachinotus kennedyi</i>					
	<i>T. falcatus</i>					
POMPANO or POMPANITO	<i>Trachinotus rhodopus</i>					
PORGY	<i>Calamus</i> spp.		CFP			
	<i>Chrysophrys auratus</i>					
	<i>Dentex</i> spp.					
	<i>Diplodus</i> spp.					
	<i>Lagodon rhomboides</i>					
	<i>Pagrus</i> spp.					



**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup>	Natural Toxin <sup>13</sup>	Scombrototoxin (Histamine)	Environmental Chemical	Aquaculture Drug
		Hazards	Hazards	Hazards	Hazards	Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
PORGY (cont.)	<i>Pterogymnus laniarus</i>					
PORGY	<i>Stenotomus caprinus</i>					
PORGY or SCUP	<i>Stenotomus chrysops</i>					
PUFFER FISH <sup>8,16</sup>	<i>Sphoeroides maculatus</i> <sup>11b</sup>					
	<i>S. nephelus</i> <sup>11a</sup>		PFP			
	<i>Takifugu rubripes</i> <sup>11c</sup>		PFP			
PUFFER FISH <sup>8,16</sup> , aquacultured	<i>Takifugu rubripes</i> <sup>11c</sup>		PFP		✓	✓
RACEHORSE	<i>Congiopodus leucopaecilus</i>					
RITA	<i>Rita rita</i>					
ROCKFISH	<i>Scorpaena cardinalis</i>	✓				
	<i>S. papillosus</i>	✓				
	<i>Sebastes</i> spp.	✓				
ROCKLING	<i>Ciliata</i> spp.					
ROHU	<i>Labeo rohita</i>				✓	
ROSEFISH	<i>Helicolenus dactylopterus</i>					
ROUGHY	<i>Paratrachichthys trailli</i>					
ROUGHY, ORANGE <sup>12</sup>	<i>Hoplostethus atlanticus</i>		GFP			
ROUGHY, SILVER	<i>Hoplostethus mediterraneus</i>					
SABLEFISH	<i>Anoplopoma fimbria</i>	✓				
SABLEFISH, aquaculture	<i>Anoplopoma fimbria</i>				✓	✓
SAILFISH	<i>Istiophorus platypterus</i>			✓		
SALMON and roe, aquacultured	<i>Oncorhynchus</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Salmo salar</i>	✓ <sup>4</sup>			✓	✓

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SALMON and roe (WILD, FRESHWATER)	<i>Oncorhynchus</i> spp.	✓			✓	
	<i>Salmo salar</i>	✓			✓	
SALMON and roe, (WILD, OCEAN)	<i>Oncorhynchus</i> spp.	✓				
	<i>Salmo salar</i>	✓				
SANDDAB	<i>Citharichthys sordidus</i>				✓	
SANDPERCH	<i>Mugiloides chilensis</i>					
	<i>Parapercis</i> spp.					
SARDINE <sup>12</sup>	<i>Harengula clupeiola</i>		ASP	✓		
	<i>H. jaguana</i>		ASP	✓		
	<i>H. spp.</i>			✓		
	<i>Sardinella</i> spp.			✓		
	<i>Sardinops sagax</i>		ASP	✓		
SAUGER	<i>Sander canadensis</i>					
SAURY	<i>Cololabis saira</i>			✓		
	<i>Scomberesox saurus</i>			✓		
SCAD	<i>Atule mate</i>	✓				
	<i>Decapterus</i> spp.	✓				
	<i>Selar crumenophthalmus</i>	✓		✓		
	<i>Trachurus</i> spp.	✓		✓		
SCAD or HORSE MACKEREL	<i>Trachurus trachurus</i>	✓		✓		

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SCULPIN	<i>Hemitripterus americanus</i>					
	<i>Myoxocephalus polyacanthocephalus</i>					
	<i>Scorpaenichthys marmoratus</i>					
SEA BREAM	<i>Archosargus rhomboidalis</i>					
	<i>Chrysophrys auratus</i>					
	<i>Pagellus</i> spp.					
SEA BREAM, aquacultured	<i>Sparus aurata</i>				✓	✓
SEAROBIN	<i>Chelidonichthys</i> spp.					
	<i>Peristedion miniatum</i>					
	<i>Prionotus carolinus</i>					
	<i>Pterygotrigla picta</i>					
SEATROUT	<i>Cynoscion</i> spp.	✓				
SHAD	<i>Alosa</i> spp.		ASP <sup>5</sup>	✓	✓	
SHAD roe	<i>Alosa</i> spp.				✓	
SHAD, GIZZARD	<i>Dorosoma</i> spp.			✓	✓	
	<i>Nematoalosa vlaminghi</i>			✓	✓	
SHAD, HILSA	<i>Tenualosa ilisha</i>			✓		
SHARK	<i>Carcharhinus</i> spp.					
	<i>Cetorhinus maximus</i>					
	<i>Galeocerdo cuvier</i>					
	<i>Galeorhinus</i> spp.					
	<i>Hexanchus griseus</i>					
	<i>Lamna ditropis</i>					
	<i>Negaprion brevirostris</i>					
	<i>Notorynchus cepedianus</i>					
<i>Prionace glauca</i>						

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SHARK (cont.)	<i>Sphyrna</i> spp.					
	<i>Triaenodon obesus</i>					
	<i>Triakis semifasciata</i>					
SHARK, ANGEL	<i>Squatina</i> spp.					
SHARK, DOGFISH or CAPE SHARK	<i>Centrophorus</i> spp.					
	<i>Mustelus</i> spp.					
	<i>Scyliorhinus</i> spp.					
	<i>Squalus</i> spp.					
SHARK, MAKO	<i>Isurus</i> spp.					
SHARK or PORBEAGLE	<i>Lamna nasus</i>					
SHARK or SMOOTHHOUND	<i>Mustelus</i> spp.					
SHARK, THRESHER	<i>Alopias</i> spp.					
SHEEPHEAD	<i>Archosargus probatocephalus</i>				✓	
	<i>Semicossyphus pulcher</i>				✓	
SHINER	<i>Notropis</i> spp.				✓	
SILVERSIDE	<i>Atherinopsis californiensis</i>		ASP		✓	
	<i>A. spp.</i>					
	<i>Basilichthys australis</i>				✓	
	<i>Membras marinica</i>		ASP			
	<i>Menidia menidia</i>				✓	
SKATE	<i>Amblyraja</i> spp.				✓	
	<i>Bathyraja</i> spp.				✓	
	<i>Leucoraja</i> spp.				✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SKATE (cont.)	<i>Malacoraja</i> spp.				✓	
	<i>Raja</i> spp.				✓	
SKILLFISH	<i>Erilepis zonifer</i>					
SMELT	<i>Allosmerus elongatus</i>				✓	
	<i>Argentina</i> spp.				✓	
	<i>Hypomesus</i> spp.				✓	
	<i>Osmerus</i> spp.				✓	
	<i>Plecoglossus altivelis</i> <i>altivelis</i>				✓	
	<i>Retropinna retropinna</i>				✓	
	<i>Spirinchus</i> spp.				✓	
	<i>Thaleichthys pacificus</i>				✓	
SNAKEHEAD	<i>Channa striata</i>					
	<i>Parachanna obscura</i>					
SNAPPER	<i>Apsilus dentatus</i>					
	<i>Etelis</i> spp.					
	<i>Lutjanus bohar</i>		CFP			
	<i>L. buccanella</i>		CFP			
	<i>L. cyanopterus</i>		CFP			
	<i>L. gibbus</i>		CFP			
	<i>L. griseus</i>		CFP			
	<i>L. jocu</i>		CFP			
	<i>L. sebae</i>		CFP			
	<i>Macolor</i> spp.					
	<i>Ocyurus chrysurus</i>		CFP <sup>14</sup>			
	<i>Pristipomoides</i> spp.	✓	CFP			

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SNAPPER (cont.)	<i>Rhomboplites aurorubens</i>					
	<i>Symphoricthys spilurus</i>					
	<i>Symphorus nematophorus</i>		CFP			
SNAPPER or SCHOOLMASTER	<i>Lutjanus apodus</i>		CFP			
SNAPPER, aquacultured	<i>Lutjanus</i> spp.				✓	✓
SNOOK	<i>Centropomus</i> spp.				✓	
SOLE or FLOUNDER	<i>Aseraggodes</i> spp.	✓				
	<i>Austroglossus</i> spp.	✓				
	<i>Brachirus orientalis</i>	✓				
	<i>Buglossidium luteum</i>	✓				
	<i>Clidoderma asperrimum</i>	✓				
	<i>Embassichthys bathybius</i>	✓				
	<i>Eopsetta jordani</i>	✓				
	<i>Glyptocephalus</i> spp.	✓				
	<i>G. zachirus</i>	✓				
	<i>Gymnachirus melas</i>	✓				
	<i>Hippoglossina</i> spp.	✓				
	<i>Lepidopsetta bilineata</i>	✓				
	<i>Lyopsetta exilis</i>	✓				
<i>Microchirus</i> spp.	✓					

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SOLE or FLOUNDER (cont.)	<i>Microstomus kitt</i>	✓				
	<i>M. pacificus</i>	✓				
	<i>Parophrys vetulus</i>	✓				
	<i>Psettichthys melanostictus</i>	✓				
	<i>Pseudopleuronectes americanus</i>	✓				
	<i>Solea solea</i>	✓				
	<i>Trinectes</i> spp.	✓				
	<i>Xystreurys liolepis</i>	✓				
SOLE or FLOUNDER, aquacultured	<i>Aseraggodes</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Austroglossus</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Brachirus orientalis</i>	✓ <sup>4</sup>			✓	✓
	<i>Buglossidium luteum</i>	✓ <sup>4</sup>			✓	✓
	<i>Clidoderma asperrimum</i>	✓ <sup>4</sup>			✓	✓
	<i>Embassichthys bathybius</i>	✓ <sup>4</sup>			✓	✓
	<i>Eopsetta jordani</i>	✓ <sup>4</sup>			✓	✓
	<i>Glyptocephalus</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>G. zachirus</i>	✓ <sup>4</sup>			✓	✓
	<i>Gymnachirus melas</i>	✓ <sup>4</sup>			✓	✓
	<i>Hippoglossina</i> spp.	✓ <sup>4</sup>			✓	✓

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
SOLE or FLOUNDER, aquacultured (cont.)	<i>Lepidopsetta bilineata</i>	✓ <sup>4</sup>			✓	✓
	<i>Lyopsetta exilis</i>	✓ <sup>4</sup>			✓	✓
	<i>Microchirus</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Parophrys vetulus</i>	✓ <sup>4</sup>			✓	✓
	<i>Psettichthys melanostictus</i>	✓ <sup>4</sup>			✓	✓
	<i>Pseudopleuronectes americanus</i>	✓ <sup>4</sup>			✓	✓
	<i>Solea solea</i>	✓ <sup>4</sup>			✓	✓
	<i>Trinectes</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Xystreureys liolepis</i>	✓ <sup>4</sup>			✓	✓
SORUBIM or SURUBI	<i>Pseudoplatystoma corruscans</i>				✓	
SPADEFISH	<i>Chaetodipterus</i> spp.					
SPEARFISH	<i>Tetrapturus</i> spp.			✓		
SPOT	<i>Leiostomus xanthurus</i>		ASP		✓	
SPRAT or BRISTLING	<i>Sprattus</i> spp.	✓		✓		
SQUIRRELFISH	<i>Holocentrus</i> spp.					
	<i>Myripristis</i> spp.					
	<i>Sargocentron</i> spp.					
STURGEON and roe (CAVIAR) <sup>8</sup>	<i>Acipenser</i> spp.				✓	
	<i>Huso huso</i>				✓	
	<i>Pseudoscaphirhynchus</i> spp.				✓	
	<i>Scaphirhynchus</i> spp.				✓	



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MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
STURGEON and roe (CAVIAR) <sup>8</sup> , aquacultured	<i>Acipenser</i> spp.				✓	✓
	<i>Huso huso</i>				✓	✓
	<i>Pseudoscaphirhynchus</i> spp.				✓	✓
	<i>Scaphirhynchus</i> spp.				✓	✓
SUCKER	<i>Carpoides</i> spp.				✓	
	<i>Catostomus commersonii</i>				✓	
	<i>Cycleptus elongatus</i>				✓	
SUCKER or REDHORSE	<i>Moxostoma macrolepidotum</i>				✓	
SUNFISH	<i>Archoplites interruptus</i>				✓	
	<i>Lepomis</i> spp.				✓	
SURFPERCH	<i>Amphistichus</i> spp.				✓	
	<i>Cymatogaster aggregata</i>				✓	
	<i>Embiotoca</i> spp.				✓	
	<i>Hyperprosopon argenteum</i>				✓	
	<i>Rhacochilus toxotes</i>				✓	
SUTCHI or SWAI	<i>Pangasianodon hypophthalmus</i>				✓	
SUTCHI or SWAI, aquacultured	<i>Pangasianodon hypophthalmus</i>				✓	✓
SWORDFISH	<i>Xiphias gladius</i>			✓		
TANG	<i>Acanthurus</i> spp.		CFP <sup>2</sup>			
	<i>Ctenochaetus striatus</i>		CFP <sup>2</sup>			

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
TANG (cont.)	<i>C. strigosus</i>		CFP <sup>2</sup>			
	<i>Naso</i> spp.		CFP <sup>2</sup>			
	<i>Zebrasoma</i> spp.					
TARPON	<i>Megalops atlanticus</i>				✓	
TAUTOG	<i>Tautoga onitis</i>				✓	
THORNYHEAD	<i>Sebastolobus</i> spp.	✓			✓	
THREADFIN	<i>Eleutheronema tetradactylum</i>					
	<i>Galeoides decadactylus</i>					
	<i>Polydactylus</i> spp.					
	<i>Polynemus</i> spp.					
TIGERFISH	<i>Datnioides microlepis</i>				✓	
	<i>D. polota</i>				✓	
TILAPIA	<i>Oreochromis</i> spp.	✓			✓	
	<i>Sarotherodon</i> spp.	✓			✓	
	<i>Tilapia</i> spp.	✓			✓	
TILAPIA, aquacultured	<i>Oreochromis</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Sarotherodon</i> spp.	✓ <sup>4</sup>			✓	✓
	<i>Tilapia</i> spp.	✓ <sup>4</sup>			✓	✓
TILEFISH	<i>Caulolatilus</i> spp.					
	<i>Lopholatilus chamaeleonticeps</i>					
	<i>Malacanthus plumieri</i>					
	<i>Prolatilus jugularis</i>					
TINFOIL	<i>Barbonymus altus</i>					

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**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
TOMCOD	<i>Microgadus</i> spp.	✓				
TONGUESOLE	<i>Cynoglossus</i> spp.	✓				
TRAHIRA	<i>Hoplias malabaricus</i>					
TREVALLY	<i>Caranx ignobilis</i>	✓	CFP	✓		
	<i>C. melampygus</i>	✓	CFP	✓		
	<i>C. spp.</i>	✓		✓		
	<i>Gnathanodon speciosus</i>					
TRIGGERFISH	<i>Balistes vetula</i>		CFP			
	<i>Canthidermis sufflamen</i>					
	<i>Melichthys niger</i>					
	<i>Navodon</i> spp.					
TRIPLETAIL	<i>Datnioides quadrifasciatus</i>					
	<i>Lobotes</i> spp.					
TROUT, aquacultured	<i>Oncorhynchus aguabonita</i>				✓	✓
	<i>O. clarkii</i>				✓	✓
	<i>O. gilae</i>				✓	✓
	<i>O. mykiss</i>				✓	✓
	<i>Salmo trutta</i>				✓	✓
	<i>Salvelinus fontinalis</i>				✓	✓
	<i>S. malma</i>				✓	✓
	<i>S. namaycush</i>				✓	✓
	<i>Stenodus leucichthys</i>				✓	✓

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
TROUT, RAINBOW or STEELHEAD	<i>Oncorhynchus mykiss</i>	✓				
TRUMPETER	<i>Latridopsis</i> spp.				✓	
	<i>Latris lineata</i>				✓	
TUNA	<i>Allothunnus fallai</i>	✓		✓		
	<i>Auxis</i> spp.	✓		✓		
	<i>Euthynnus</i> spp.	✓		✓		
	<i>Katsuwonus pelamis</i>	✓		✓		
	<i>Thunnus alalunga</i>		ASP	✓		
	<i>T. albacares</i>			✓		
	<i>T. atlanticus</i>			✓		
	<i>T. maccoyii</i>			✓		
	<i>T. obesus</i>			✓		
	<i>T. thynnus</i>			✓		
	<i>T. tonggol</i>	✓		✓		
	TUNA, aquacultured	<i>Thunnus</i> spp.	✓ <sup>4</sup>		✓	✓
TURBOT	<i>Pleuronichthys guttulatus</i>	✓				
	<i>P.</i> spp.	✓				
	<i>Psetta maxima</i>	✓				

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**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
TURBOT (cont.)	<i>Psettdes</i> spp.	✓				
	<i>Reinhardtius hippoglossoides</i>	✓				
TURBOT, aquacultured	<i>Psetta maxima</i>	✓ <sup>4</sup>			✓	✓
TURTLE	<i>Apalone</i> spp.				✓	
	<i>Chelydra</i> spp.				✓	
	<i>Malaclemys</i> spp.				✓	
	<i>Trachemys</i> spp.				✓	
TURTLE, aquacultured	<i>Apalone</i> spp.				✓	✓
	<i>Chelydra</i> spp.				✓	✓
	<i>Malaclemys</i> spp.				✓	✓
	<i>Trachemys</i> spp.				✓	✓
UNICORNFISH	<i>Naso unicornis</i>		CFP			
WAHOO	<i>Acanthocybium solandri</i>			✓		
WALLEYE	<i>Sander vitreus</i>				✓	
WAREHOU	<i>Seriola</i> spp.					
WEAKFISH	<i>Cynoscion</i> spp.	✓			✓	
WEAKFISH or BANGAMARY	<i>Macrodon ancylodon</i>					
WHISKERED FISH	<i>Arius</i> spp.				✓	
WHISKERED FISH or GAFFTOPSAIL FISH	<i>Bagre marinus</i>				✓	
WHISKERED FISH or HARDHEAD WHISKERED FISH	<i>Ariopsis felis</i>				✓	

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS<sup>17</sup>**

MARKET NAMES	LATIN NAMES	Parasite <sup>3</sup> Hazards	Natural Toxin <sup>13</sup> Hazards	Scombrototoxin (Histamine) Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 5	CHP 6	CHP 7	CHP 9	CHP 11
WHITEFISH	<i>Coregonus</i> spp.				✓	
	<i>Prosopium cylindraceum</i>				✓	
WHITING	<i>Merluccius gayi</i>	✓				
	<i>M. hubbsi</i>	✓				
	<i>M. merluccius</i>	✓				
WHITING, BLUE	<i>Micromesistius</i> spp.	✓				
WHITING, NEW ZEALAND	<i>Macruronus novaezelandiae</i>					
WHITING or PACIFIC WHITING	<i>Merluccius productus</i>	✓				
WRASSE	<i>Cheilinus undulatus</i>		CFP			
WOLFFISH	<i>Anarhichas</i> spp.	✓				
YELLOWTAIL or AMBERJACK	<i>Seriola lalandi</i>			✓		
YELLOWTAIL or AMBERJACK, aquacultured	<i>Seriola lalandi</i>	✓ <sup>4</sup>		✓	✓	✓
ZANDER	<i>Sander lucioperca</i>				✓	
ZANDER, aquacultured	<i>Sander lucioperca</i>				✓	✓

**TABLE 3-2**  
**POTENTIAL VERTEBRATE SPECIES-RELATED HAZARDS**<sup>17</sup>

**ACRONYMS:** **ASP** = Amnesic Shellfish Poisoning; **CFP** = Ciguatera Fish Poisoning; **GFP** = Gempylid Fish Poisoning; **IHT** = Ichthyohemotoxic fish; **PSP** = Paralytic Shellfish Poisoning; and **PPF** = Pufferfish Poisoning

**FOOTNOTES:**

1. This hazard does not apply to offshore catch (e.g., areas not subject to shoreside contaminant discharges).
2. Indicates that the ciguatera hazard is associated with this species only in the tropical Pacific Ocean.
3. This hazard applies where the processor has knowledge or has reason to know that the parasite-containing fish or fishery product will be consumed without a process sufficient to kill the parasites, or where the processor represents, labels, or intends for the product to be so consumed.
4. Species that normally have a parasite hazard as a result of consuming infected prey apparently do not have the same parasite hazard when raised only on pelleted feed in an aquaculture operation. See Chapter 5 for further information.
5. This hazard only applies if the product is marketed unviscerated.
6. Amberjack, yellowtail, Spanish mackerel, king mackerel, and other scombrototoxin-forming fish are sometimes marketed incorrectly as kingfish.
7. The scientific name for this species has changed since the previous edition of this guidance.
8. The market name for this species has been changed since the previous edition of this guidance.
9. This hazard does not apply to products intended for animal feed or fish oil products but does apply to products intended for direct human consumption of the muscle and to aqueous components, such as fish protein concentrates that are to be used as food additives.
10. This hazard only applies to food products for human consumption, such as oil extracts used as dietary ingredients.
11. Puffer Fish:
  - a. PFP has been associated with fish from the east coast of Florida specifically in the following counties: Volusia, Brevard, Indian River, St. Lucie, and Martin.
  - b. There have been no reported tetrodotoxin or PFP illnesses associated with this species as of May 2018.
  - c. *Takifugu rubripes* is the only species to be offered for importation from Japan based on the agreement between US FDA and the government of Japan.
12. Other Natural Marine Toxins may be applicable to this species. Refer to Chapter 6 for clarification.
13. Many of the fish and families of fish listed in this table have been identified with specific natural marine toxins as a result of illnesses/outbreaks which have occurred or have been identified through research. For further information regarding each toxin refer to Chapter 6 and its references.
14. The toxin has been identified through an FDA research project; however, the toxin levels found do not exceed the established guidance levels and/or have not been associated with illnesses.
15. Other flounder are also known as sole and can be found under "Sole or Flounder."
16. FDA recommends consuming these species of fish only as appropriate.
17. You should identify pathogens from the harvest area as a potential species-related hazard if you know, or have reason to know, that the fish will be consumed without a process sufficient to kill pathogens or if you represent, label, or intend for the product to be so consumed. (See Chapter 4 for guidance on controlling pathogens from the harvest area.)

TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
ABALONE	<i>Haliotis laevis</i>			✓	✓	
	<i>H. ruber</i>				✓	
	<i>H. spp.</i>				✓	
	<i>Marinaurris roei</i>				✓	
ARKSHELL	<i>Anadara spp.</i>	✓		✓	✓	
	<i>Arca spp.</i>	✓		✓	✓	
BARNACLES, GOOSENECK	<i>Pollicipes polymerus</i>			✓	✓	
CLAM, BENTNOSE	<i>Macoma nasuta</i>	✓		✓	✓	
CLAM BUTTER	<i>Saxidomus spp.</i>	✓		✓	✓	
CLAM, CALICO	<i>Macrocallista maculata</i>	✓		✓	✓	
CLAM, GEODUCK	<i>Panopea bitruncata</i>	✓		✓	✓	
	<i>P. spp.</i>	✓		✓	✓	
CLAM, HARD	<i>Arctica islandica</i>	✓		✓	✓	
	<i>Meretrix spp.</i>	✓		✓	✓	
	<i>Venus mortoni</i>	✓		✓	✓	
CLAM, HARDSHELL or QUAHOG	<i>Mercenaria spp.</i>	✓		✓	✓	
	<i>Protothaca thaca</i>	✓		✓	✓	
CLAM, LITTLENECK	<i>Protothaca staminea</i>	✓		✓	✓	
	<i>P. tenerrima</i>	✓		✓	✓	



TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
CLAM, LITTLENECK (cont.)	<i>Tapes variegata</i>	✓		✓	✓	
	<i>T. virginea</i>	✓		✓	✓	
	<i>Venerupis aurea</i>	✓		✓	✓	
	<i>V. decussata</i> <sup>4</sup>	✓		✓	✓	
	<i>V. philippinarum</i>	✓		✓	✓	
CLAM, MARSH	<i>Corbicula japonica</i>	✓		✓	✓	
CLAM, PISMO	<i>Tivela stultorum</i>	✓		✓	✓	
CLAM, RAZOR	<i>Ensis</i> spp.	✓		✓	✓	
	<i>Siliqua</i> spp.	✓		✓	✓	
	<i>Solen</i> spp.	✓		✓	✓	
	<i>Tagelus</i> spp.	✓		✓	✓	
CLAM, SANGUIN	<i>Sanguinolaria</i> spp.	✓		✓	✓	
CLAM, SOFTSHELL	<i>Mya arenaria</i>	✓		✓	✓	
CLAM, SURF or SURFLAM	<i>Mactra</i> spp.	✓		✓	✓	
	<i>Mactrellona alata</i>	✓		✓	✓	
	<i>Mactromeris</i> spp.	✓		✓	✓	
	<i>Mactrotoma</i> spp.	✓		✓	✓	
	<i>Simomactra</i> spp.	✓		✓	✓	

TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
CLAM, SURF or SURFCLAM (cont.)	<i>Spisula</i> spp.	✓		✓	✓	
	<i>Tresus</i> spp.	✓		✓	✓	
CLAM, SURF or SURFCLAM, aquacultured	<i>Macra schalinensis</i>	✓		✓	✓	
CLAM, VENUS	<i>Chione</i> spp.	✓		✓	✓	
	<i>Chionista</i> spp.	✓		✓	✓	
	<i>Macrocallista nimbosa</i>	✓		✓	✓	
CLAM, WEDGE	<i>Paphies</i> spp.	✓		✓	✓	
COCKLE	<i>Cardium</i> spp.	✓		✓	✓	
	<i>Clinocardium</i> spp.	✓		✓	✓	
	<i>Dinocardium robustum</i>	✓		✓	✓	
	<i>Serripes groenlandicus</i>	✓		✓	✓	
CONCH	<i>Lambis lambis</i>	✓		✓		
	<i>Strombus</i> spp.	✓		✓		
COQUINA	<i>Donax</i> spp.	✓		✓	✓	
COQUINA, FALSE	<i>Iphigenia brasiliana</i>	✓		✓	✓	
CRAB, BENI-ZUWAI	<i>Chionocetes japonicus</i>				✓	
CRAB, BLUE	<i>Callinectes sapidus</i>				✓	
CRAB, BLUE, aquacultured	<i>Callinectes sapidus</i>				✓	✓
CRAB, BROWN	<i>Chaceon fenneri</i>				✓	

TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
CRAB, GOLDEN KING	<i>Lithodes aequispinus</i>				✓	
CRAB, CENTOLLA	<i>Lithodes antarcticus</i>				✓	
	<i>L. murrayi</i>				✓	
CRAB, CHINESE MITTEN	<i>Eriocheir sinensis</i>				✓	
CRAB, CHINESE MITTEN, aquacultured	<i>Eriocheir sinensis</i>				✓	✓
CRAB, DEEPSEA	<i>Paralomis granulosa</i>				✓	
CRAB, DUNGENESS	<i>Metacarcinus magister</i> <sup>4</sup>			✓ <sup>2</sup>	✓	
CRAB, JAPANESE FRESHWATER	<i>Geothelphusa dehaani</i>		✓ <sup>1</sup>		✓	
CRAB, JONAH	<i>Cancer borealis</i>			✓ <sup>2</sup>	✓	
CRAB, KING	<i>Paralithodes camtschaticus</i>				✓	
	<i>P. platypus</i>				✓	
CRAB, KING or HANASAKI	<i>Paralithodes brevipes</i>				✓	
CRAB, KOREAN or KEGANI	<i>Erimacrus isenbeckii</i>				✓	
CRAB, LITHODES	<i>Neolithodes brodiei</i>				✓	
CRAB, RED	<i>Chaceon quinquedens</i>				✓	
CRAB, RED ROCK	<i>Cancer productus</i>			✓ <sup>2</sup>	✓	
CRAB, ROCK	<i>Cancer irroratus</i>				✓	
	<i>C. pagurus</i>				✓	
CRAB, SANTOLLA, NOVA, or SOUTHERN RED	<i>Lithodes santolla</i>				✓	

TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
CRAB, SHEEP	<i>Loxorhynchus grandis</i>				✓	
CRAB, SNOW	<i>Chionoecetes angulatus</i>				✓	
	<i>C. bairdi</i>				✓	
	<i>C. opilio</i>				✓	
	<i>C. tanneri</i>				✓	
CRAB, SPIDER	<i>Jacquiniotia edwardsii</i>				✓	
	<i>Maja squinado</i>				✓	
CRAB, STONE	<i>Menippe spp.</i>				✓	
CRAB, SWAMP	<i>Scylla serrata</i>				✓	
CRAB, SWAMP, aquacultured	<i>Scylla serrata</i>				✓	✓
CRAB, SWIMMING	<i>Callinectes arcuatus</i>				✓	
	<i>C. toxotes</i>				✓	
	<i>Ovalipes punctatus</i>				✓	
	<i>Portunus spp.</i>				✓	
CRAB, SWIMMING, aquacultured	<i>Portunus pelagicus</i>				✓	✓
CRAWFISH or CRAYFISH	<i>Astacus spp.</i>				✓	
	<i>Cambarus spp.</i>				✓	
	<i>Cherax spp.</i>				✓	
	<i>Euastacus armatus</i>				✓	

TABLE 3-3

POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
CRAWFISH or CRAYFISH (cont.)	<i>Pacifastacus</i> spp.				✓	
	<i>Paranephrops</i> spp.				✓	
	<i>Procambarus</i> spp.				✓	
CRAWFISH or CRAYFISH, aquacultured	<i>Astacus</i> spp.				✓	✓
	<i>Cambarus</i> spp.				✓	✓
	<i>Cherax</i> spp.				✓	✓
	<i>Euastacus armatus</i>				✓	✓
	<i>Pacifastacus</i> spp.				✓	✓
	<i>Paranephrops</i> spp.				✓	✓
	<i>Procambarus</i> spp.				✓	✓
CUTTLEFISH	<i>Sepia</i> spp.			✓ <sup>2</sup>		
JELLYFISH	<i>Rhopilema</i> spp.					
KRILL KRILL KRILL	<i>Euphausia</i> spp.					
	<i>Meganyctiphanes norvegica</i>					
	<i>Thysandoessa inermis</i>					
LANGOSTINO	<i>Cervimunida johni</i>					
	<i>Munida gregaria</i>					
	<i>Pleuroncodes</i> spp.					
LIMPET	<i>Cellana denticulata</i>					
	<i>Diodora aspera</i>					
	<i>Fissurella maxima</i>					
	<i>Lottia gigantea</i>					
	<i>Patella caerulea</i>					
	<i>Tectura testudinalis</i>					

TABLE 3-3

POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
LOBSTER	<i>Homarus</i> spp.			✓ <sup>2</sup>		✓ <sup>3</sup>
LOBSTER, NORWAY	<i>Nephrops norvegicus</i>					
LOBSTER, ROCK	<i>Jasus</i> spp.					
LOBSTER, ROCK or SPINY	<i>Palinurus</i> spp.					
	<i>Panulirus</i> spp.					
LOBSTER, SLIPPER	<i>Ibacus ciliatus</i>					
	<i>Scyllarides</i> spp.					
	<i>Thenus orientalis</i>					
LOBSTERETTE	<i>Metanephrops</i> spp.					
	<i>Nephropsis aculeata</i>					
MUREX or MEREX	<i>Murex brandaris</i>					
MUSSEL	<i>Modiolus</i> spp.	✓		✓	✓	
	<i>Mytilus</i> spp.	✓		✓	✓	
	<i>Perna canaliculus</i>	✓		✓	✓	
OCTOPUS	<i>Eledone</i> spp.		✓ <sup>1</sup>	✓ <sup>2</sup>		
	<i>Octopus</i> spp.		✓ <sup>1</sup>	✓ <sup>2</sup>		
OCTOPUS, BLUE-RINGED	<i>Hapalochlaena</i> spp.			✓		
OYSTER	<i>Crassostrea</i> spp.	✓		✓	✓	
	<i>Ostrea</i> spp.	✓		✓	✓	
	<i>Spondylus</i> spp.	✓		✓	✓	
	<i>Tiostrea</i> spp.	✓		✓	✓	
PEN SHELL	<i>Atrina pectinata</i>	✓		✓	✓	
PERIWINKLE	<i>Littorina littorea</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	

TABLE 3-3

POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
SCALLOP	<i>Aequipecten</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Amusium</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Argopecten nucleus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Chlamys</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Euvola</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Patinopecten yessoensis</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Pecten</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Placopecten magellanicus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
SCALLOP, aquacultured	<i>Aequipecten</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Amusium</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Argopecten nucleus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Chlamys</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Euvola</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Patinopecten yessoensis</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Pecten</i> spp.	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
	<i>Placopecten magellanicus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
SCALLOP or BAY SCALLOP	<i>Argopecten irradians</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
SCALLOP, CALICO	<i>Argopecten gibbus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	
SCALLOP or WEATHERVANE	<i>Patinopecten caurinus</i>	✓ <sup>2</sup>		✓ <sup>2</sup>	✓	

TABLE 3-3

POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
SEA CUCUMBER	<i>Apostichopus</i> spp.					
	<i>Cucumaria</i> spp.				✓	
	<i>Holothuria</i> spp.				✓	
	<i>Parastichopus</i> spp.				✓	
	<i>Stichopus</i> spp.				✓	
SEA CUCUMBER, aquacultured	<i>Apostichopus japonicus</i>				✓	✓
	<i>Holothuria scabras</i>				✓	✓
SEA URCHIN roe	<i>Echinus esculentus</i>				✓	
	<i>Evechinus chloroticus</i>				✓	
	<i>Heliocidaris</i> spp.				✓	
	<i>Loxechimus</i> spp.				✓	
	<i>Paracentrotus</i> spp.				✓	
	<i>Pseudocentrotus</i> spp.				✓	
	<i>Strongylocentrotus</i> spp.				✓	
SEABOB or SHRIMP	<i>Xiphopenaeus kroyeri</i>					
SEA SQUIRT	<i>Styela</i> spp.			✓		
SHIRMP	<i>Acetes japonicus</i>				✓	
	<i>Crangon</i> spp.					
	<i>Farfantepenaeus</i> spp.					
	<i>Fenneropenaeus</i> spp.					
	<i>Litopenaeus</i> spp.					



TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
SHRIMP (cont.)	<i>Marsupenaeus</i> spp.					
	<i>Melicertus</i> spp.					
	<i>Metapenaeus affinis</i>					
	<i>Palaemon serratus</i>					
	<i>Palaemonetes vulgaris</i>					
	<i>Pandalopsis dispar</i>					
	<i>Pandalus</i> spp.					
	<i>Penaeus</i> spp.					
	<i>Pleoticus muelleri</i>					
	<i>Plesionika martia</i>					
SHRIMP, aquacultured	<i>Crangon</i> spp.				✓	✓
	<i>Exopalaemon styliferus</i>				✓	✓
	<i>Farfantepenaeus</i> spp.				✓	✓
	<i>Fenneropenaeus</i> spp.				✓	✓
	<i>Litopenaeus</i> spp.				✓	✓
	<i>Marsupenaeus</i> spp.				✓	✓
	<i>Macrobrachium</i> spp.				✓	✓
	<i>Melicertus</i> spp.				✓	✓
	<i>Metapenaeus</i> spp.				✓	✓
	<i>Palaemon serratus</i>				✓	✓
	<i>Palaemonetes vulgaris</i>				✓	✓
	<i>Pandalopsis dispar</i>				✓	✓
	<i>Pandalus</i> spp.				✓	✓

TABLE 3-3

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS <sup>5</sup>**

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
SHRIMP, aquacultured (cont.)	<i>Penaeus</i> spp.				✓	✓
	<i>Plesionika martia</i>				✓	✓
SHRIMP, FRESHWATER	<i>Macrobrachium</i> spp.					
SHRIMP, FRESHWATER, aquacultured	<i>Macrobrachium</i> spp.				✓	✓
SHRIMP, ROCK	<i>Sicyonia brevirostris</i>					
SHRIMP, ROYAL	<i>Pleoticus robustus</i>					
SHRIMP or PINK SHRIMP	<i>Pandalus borealis</i>					
	<i>P. jordani</i>					
SHRIMP or PRAWN	<i>Haliporoides sibogae</i> <sup>4</sup>					
SNAIL or ESCARGOT	<i>Achatina fulica</i>				✓	
	<i>Cornu aspersa</i>		✓ <sup>1</sup>		✓	
	<i>Elona quimperiana</i>		✓ <sup>1</sup>		✓	
	<i>Helix lucorum</i>		✓ <sup>1</sup>		✓	
	<i>Helix pomatia</i>				✓	
	<i>Otala</i> spp.		✓ <sup>1</sup>			
	<i>Pila polita</i>		✓ <sup>1</sup>		✓	
SNAIL, MOON	<i>Polinices</i> spp.			✓		
SQUID or CALAMARI	<i>Berryteuthis magister</i>		✓ <sup>1</sup>			
	<i>Doryteuthis opalescens</i>			✓		
	<i>Dosidicus gigas</i>		✓ <sup>1</sup>	✓ <sup>2</sup>		
	<i>Illex</i> spp.		✓ <sup>1</sup>			

**TABLE 3-3**

**POTENTIAL INVERTEBRATE SPECIES-RELATED HAZARDS** <sup>5</sup>

MARKET NAMES	LATIN NAMES	Pathogen Hazards	Parasite Hazards	Natural Toxin Hazards	Environmental Chemical Hazards	Aquaculture Drug Hazards
		CHP 4	CHP 5	CHP 6	CHP 9	CHP 11
SQUID or CALAMARI (cont.)	<i>Loligo media</i>		✓ <sup>1</sup>			
	<i>L. spp.</i>		✓ <sup>1</sup>			
	<i>Lolliguncula spp.</i>		✓ <sup>1</sup>			
	<i>Nototodarus spp.</i>		✓ <sup>1</sup>			
	<i>Ommastrephes spp.</i>		✓ <sup>1</sup>			
	<i>Rossia macrosoma</i>		✓ <sup>1</sup>			
	<i>Sepiola rondeleti</i>		✓ <sup>1</sup>			
	<i>Sepioteuthis spp.</i>		✓ <sup>1</sup>			
	<i>Todarodes sagittatus</i>		✓ <sup>1</sup>			
TOP SHELL	<i>Monodonta turbinata</i> <sup>4</sup>					
	<i>Turbo cornutus</i>					
WHELK or SEA SNAIL	<i>Buccinum spp.</i>					
	<i>Busycon spp.</i>			✓		
	<i>Neptunea spp.</i>			✓ <sup>2</sup>		
	<i>Zidona dufresnei</i>					

**FOOTNOTES:**

1. This hazard applies where the processor has knowledge or has reason to know that the parasite-containing fish or fishery product will be consumed without a process sufficient to kill the parasites, or where the processor represents, labels, or intends for the product to be so consumed.
2. This hazard only applies if the product is marketed uneviscerated.
3. This hazard only applies if the lobsters are held in pounds.
4. The scientific name for this species has changed since the last edition of this guidance.
5. You should identify pathogens from the harvest area as a potential species-related hazard if you know, or have reason to know, that the fish will be consumed without a process sufficient to kill pathogens or if you represent, label, or intend for the product to be consumed. (See Chapter 4 for guidance on controlling pathogens from the harvest area.)

**TABLE 3-4**

**POTENTIAL PROCESS-RELATED HAZARDS**

Finished Product Food <sup>1</sup>	Package Type	CHP 12: Pathogenic Bacteria Growth - Temperature Abuse	CHP 13: <i>C. botulinum</i> Toxin	CHP 14: <i>S. aureus</i> Toxin – Drying	CHP 15: <i>S. aureus</i> Toxin – Batter	CHP 16: Pathogenic Bacteria Survival Through Cooking or Pasteurization	CHP 17: Pathogenic Bacteria Survival Through Processes Designed to Retain Raw Product Characteristics	CHP 18: Pathogenic Bacteria Contamination After Pasteurization and Specialized Cooking Processes	CHP 19: Allergens and Food Intolerance Substances <sup>4</sup>	CHP 20: Metal Inclusion	CHP 21: Glass Inclusion
Battered or breaded (including surface-browned) raw shrimp, finfish, oysters, clams, squid, and other fish.	Reduced oxygen packaged (e.g., mechanical vacuum, MAP, CAP, hermetically sealed).		✓		✓				✓	✓	
Battered or breaded (including surface-browned) raw shrimp, finfish, oysters, clams, squid, and other fish.	Other than reduced oxygen packaged.				✓				✓	✓	
Cooked shrimp, crab, lobster, and other fish, including cooked meat, sections, and whole fish, and surimi-based analog products.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓			✓			✓	✓	
Cooked shrimp, crab, lobster, and other fish, including cooked meat, sections, and whole fish, and surimi-based analog products.	Other than reduced oxygen packaged.	✓				✓			✓	✓	
Dried fish.	All.	✓	✓ <sup>6</sup>	✓					✓	✓	
Fermented, acidified, pickled, salted, and LACFs.	All.	✓	✓ <sup>2</sup>						✓	✓	✓
Fish oil.	All.								✓ <sup>3</sup>		

**TABLE 3-4**

**POTENTIAL PROCESS-RELATED HAZARDS**

Finished Product Food <sup>1</sup>	Package Type	CHP 12: Pathogenic Bacteria Growth - Temperature Abuse	CHP 13: <i>C. botulinum</i> Toxin	CHP 14: <i>S. aureus</i> Toxin – Drying	CHP 15: <i>S. aureus</i> Toxin – Batter	CHP 16: Pathogenic Bacteria Survival Through Cooking or Pasteurization	CHP 17: Pathogenic Bacteria Survival Through Processes Designed to Retain Raw Product Characteristics	CHP 18: Pathogenic Bacteria Contamination After Pasteurization and Specialized Cooking Processes	CHP 19: Allergens and Food Intolerance Substances <sup>4</sup>	CHP 20: Metal Inclusion	CHP 21: Glass Inclusion
Fully cooked prepared foods.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓			✓			✓	✓	✓
Fully cooked prepared foods.	Other than reduced oxygen packaged.	✓				✓			✓	✓	✓
Pasteurized crab, lobster, and other fish, including pasteurized surimi-based analog products.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP hermetically sealed, or packed in oil).	✓	✓			✓		✓	✓	✓	
Pasteurized crab, lobster, and other fish, including pasteurized surimi-based analog products.	Other than reduced oxygen packaged.	✓				✓		✓	✓	✓	
Raw fish other than oysters, clams, and mussels (finfish and non-finish).	Reduced oxygen packaged (e.g. mechanical vacuum, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓						✓	✓	
Raw fish other than oysters, clams, and mussels (finfish and non-finish).	Other than reduced oxygen packaged.	✓							✓	✓	

TABLE 3-4

POTENTIAL PROCESS-RELATED HAZARDS

Finished Product Food <sup>1</sup>	Package Type	CHP 12: Pathogenic Bacteria Growth - Temperature Abuse	CHP 13: <i>C. botulinum</i> Toxin	CHP 14: <i>S. aureus</i> Toxin - Drying	CHP 15: <i>S. aureus</i> Toxin - Batter	CHP 16: Pathogenic Bacteria Survival Through Cooking or Pasteurization	CHP 17: Pathogenic Bacteria Survival Through Processes Designed to Retain Raw Product Characteristics	CHP 18: Pathogenic Bacteria Contamination After Pasteurization and Specialized Cooking Processes	CHP 19: Allergens and Food Intolerance Substances <sup>4</sup>	CHP 20: Metal Inclusion	CHP 21: Glass Inclusion
Raw oysters, clams, and mussels.	Reduced oxygen packaged (e.g., mechanical vacuum, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓				✓			✓	✓
Raw oysters, clams, and mussels.	Other than reduced oxygen packaged.	✓					✓			✓	✓
Salads, sandwiches, dips, cocktails, and similar seafood products prepared from ready-to-eat fishery products.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓						✓	✓	✓
Salads, sandwiches, dips, cocktails, and similar seafood products prepared from ready-to-eat fishery products.	Other than reduced oxygen packaged.	✓							✓	✓	✓
Smoked fish.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓			✓ <sup>5</sup>			✓	✓	
Smoked fish.	Other than reduced oxygen packaged.	✓				✓ <sup>5</sup>			✓	✓	

**TABLE 3-4**

**POTENTIAL PROCESS-RELATED HAZARDS**

Finished Product Food <sup>1</sup>	Package Type	CHP 12: Pathogenic Bacteria Growth - Temperature Abuse	CHP 13: <i>C. botulinum</i> Toxin	CHP 14: <i>S. aureus</i> Toxin – Drying	CHP 15: <i>S. aureus</i> Toxin – Batter	CHP 16: Pathogenic Bacteria Survival Through Cooking or Pasteurization	CHP 17: Pathogenic Bacteria Survival Through Processes Designed to Retain Raw Product Characteristics	CHP 18: Pathogenic Bacteria Contamination After Pasteurization and Specialized Cooking Processes	CHP 19: Allergens and Food Intolerance Substances <sup>4</sup>	CHP 20: Metal Inclusion	CHP 21: Glass Inclusion
Stuffed crab, shrimp, finfish, and other fish.	Reduced oxygen packaged (e.g., mechanical vacuum, MAP, CAP, or hermetically sealed).	✓	✓						✓	✓	
Stuffed crab, shrimp, finfish, and other fish.	Other than reduced oxygen packaged.	✓							✓	✓	
Uncooked prepared food.	Reduced oxygen packaged (e.g., mechanical vacuum, steam flush, hot fill, MAP, CAP, hermetically sealed, or packed in oil).	✓	✓						✓	✓	✓
Uncooked prepared food.	Other than reduced oxygen packaged.	✓							✓	✓	✓

**ACRONYMS:** *C. botulinum* = *Clostridium botulinum*; *S. aureus* = *Staphylococcus aureus*; MAP = modified atmosphere packaging; CAP = controlled atmosphere packaging; and LACF = low-acid canned food

**FOOTNOTES:**

1. You should include potential hazards from more than one finished product food category if your product fits more than one description.
2. Controls for this hazard need not be included in HACCP plans for shelf-stable acidified and LACFs. See Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers regulation (21 CFR 113), called the LACF Regulation in this guidance document, and Acidified Foods regulation (21 CFR 114) for mandatory controls.
3. This hazard does not apply to highly refined fish oil.
4. Applies to finfish and crustacean only in accordance with the Food Allergen Labeling and Consumer Protection Act (FALCPA) of 2004. Molluscan shellfish are not subject to FALCPA.
5. This hazard applies to hot smoked fish.
6. This hazard applies to dried uneviscerated fish in any type of packaging and to other dried fish and fishery products in reduced oxygen packaging used to prevent rehydration. Fish and fishery products are defined in 21 CFR 123.3.

**NOTES:**