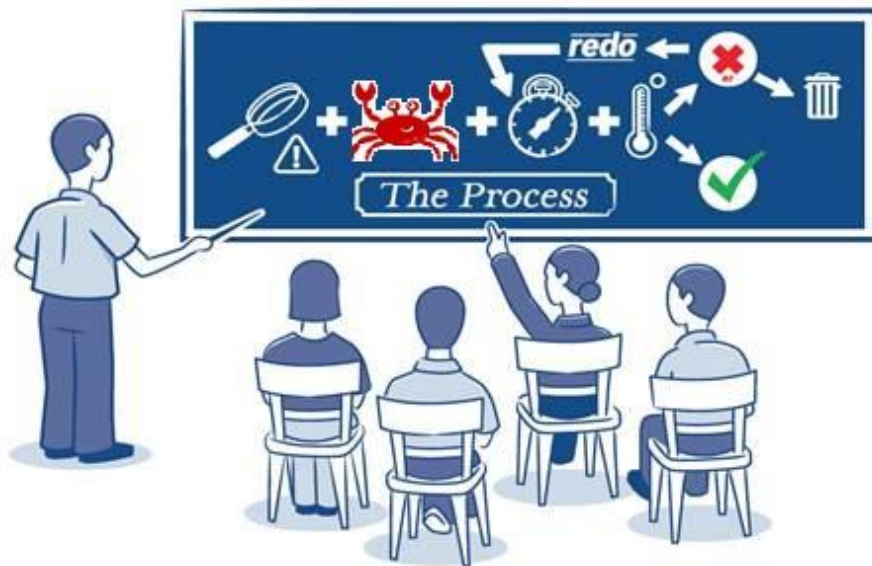


# Sample Food Safety Plan

## LIVE FISH & CRUSTACEANS



Ministry of  
Agriculture

## Product Description – Live Fish and Crustaceans

Product Description	
1. What is your product name and weight/volume?	Live saltwater fish – rockfish ( <i>Sebastes</i> spp.) and lingcod ( <i>Ophiodon elongatus</i> ) Live freshwater fish – Nile tilapia ( <i>Oreochromis niloticus</i> ) Live crustacean – Dungeness crab ( <i>Cancer magister</i> )
2. What type of product is it (e.g., raw, ready-to-eat, ready-to-cook, or ready for further processing, farmed vs. wild, domestic vs. import, etc.)?	Ready-to-cook, domestic, BC Wild – rockfish, lingcod, Dungeness crab Farmed – Nile tilapia
3. What are your product's important food safety characteristics (e.g., acidity, $A_w$ (water availability), salinity, etc.)?	None
4. What allergens does your product contain?	Seafood (fish, crustaceans and shellfish)
5. What restricted ingredients (preservatives, additives, etc.) does your product contain, and in what amounts (e.g., grams)?	None
6. What are your food processing steps (e.g., cooking, cooling, pasteurization, etc.)?	Receiving live fish/crustacean, sorting, storing – live holding, packaging/labelling/weighing, and distributing/shipping.
7. How do you package your product (e.g., vacuum, modified atmosphere, etc.) and what packaging materials do you use?	All live fish are not packaged and instead are transported in a truck in an aluminium tank equipped with air pump. All crustaceans are packed in a wax box with gel packs (if needed) and wet foam.
8. How do you store your product (e.g., keep refrigerated, keep frozen, keep dry) in your establishment and when you ship your product?	Freshwater fish (Nile tilapia) are stored and shipped in holding tank containing fresh water (municipal water). The water temperature is maintained between 22°C and 26°C.  Saltwater fish (rockfish, lingcod) are stored and shipped in a holding tank containing salt water. The water temperature is maintained between 9°C and 11°C.  Crustaceans (Dungeness crab) are stored in a salt water holding tank. The water temperature is between 0°C and 4°C. Crustaceans are shipped in a wax box with gel packs (if needed) and temperature is maintained between 0°C and 4°C.
9. What is the shelf-life of your product under proper storage conditions?	As long as the products are alive.
10. How is the 'best before' date to be noted on your product?	N/A
11. Who will consume your product (e.g., the general public, the elderly, the immunocompromised, infants)?	General public. <b>Note:</b> Not suitable for people with seafood (fish, crustaceans, and shellfish) allergies.
12. How might the consumer mishandle your product, and what safety measures will prevent this?	Products that are not properly stored at the appropriate temperature can lead to product mortality. All dead fish should be immediately iced or cooked. All dead crustaceans must be thrown out. The label on the wax box must indicate: 'do not cook any dead crab'.
13. Where will the product be sold?	Food service (e.g., restaurants), retail and wholesale premises within BC.
14. What information is on your product label?	Fish and fish products sold intraprovincially (i.e., within BC) are subject to labelling requirements under the federal <i>Food and Drug Act</i> and the <i>Consumer Packaging Labelling Act</i> .  For live fish – all required labelling information must be itemized on the product invoice that accompanies the product.  For crustaceans – labels on the wax box must contain required information such as product common name, total net weight, storage and handling instructions, supplier company name, address, and contact information.

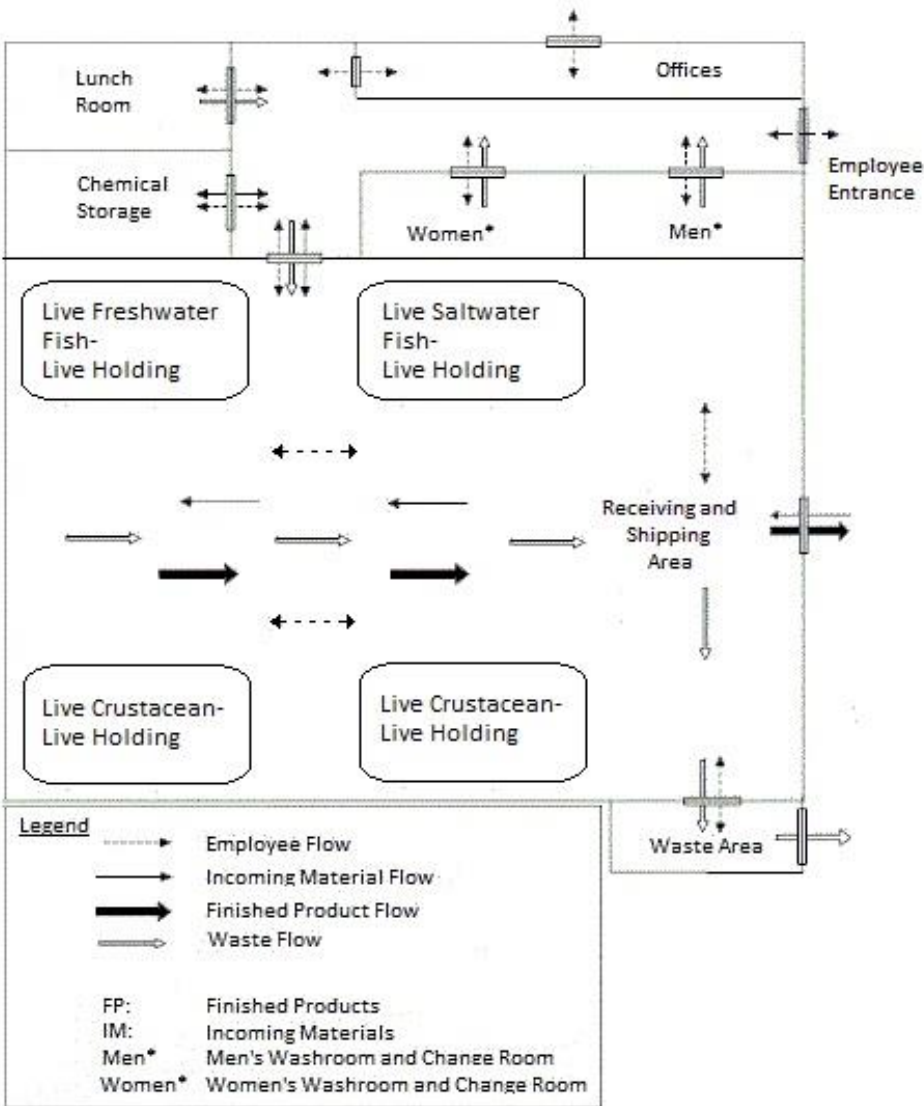
## Incoming Materials – Live Fish and Crustaceans

<b>Ingredients</b>	
Live saltwater fish (rockfish, lingcod)	Live freshwater fish (Nile tilapia)
Live crustaceans (Dungeness crab)	
<b>Food contact processing aid materials</b>	
Salt water	Fresh water (municipal water)
<b>Food contact packaging materials</b>	
Gel pack (for crustaceans only)	Wet foam (for crustaceans only)
Wax box (for crustaceans only)	
<b>Non-food contact packaging materials</b>	
Labels (for crustaceans only)	Ink (for crustaceans only)
<b>Chemicals (hand washing, sanitation and maintenance)</b>	
Hand soap	Facility and equipment cleaner
Hand sanitizer	Facility and equipment sanitizer
Equipment degreaser	

## Process Flow – Live Fish and Crustaceans

Process Step Number	Process step (e.g., washing, cooling, drying)
1	Receiving incoming materials
2	Sorting
3	Storing – Live Holding
4	Packaging/Labelling/Weighing
5	Distributing/Shipping

# Process Flow Diagram – Live Fish and Crustaceans



## Hazard Analysis and Control Measures – Live Fish and Crustaceans

Process Step Number	Biological, Chemical, and Physical Hazards	Control Measures (can include: process steps, Standard Operating Procedures (SOPs), and Prerequisite Programs)
1. Receiving ingredient – live saltwater fish (rockfish, lingcod), live freshwater fish (Nile tilapia) and live crustaceans (Dungeness crab)	<p>Biological: Potential contamination due to presence of, and growth of, pathogens (coliforms, <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>).</p> <p>Biological: Potential contamination due to presence of pathogens from pests.</p> <p>Chemical: Potential contamination due to presence of allergens, natural toxins (due to harvesting from contaminated areas), environmental chemical residues, therapeutants, and sanitation chemicals.</p> <p>Chemical: Potential contamination due to presence of allergens and cleaning/sanitizing chemicals in the plant.</p> <p>Physical: Potential contamination due to presence of foreign material (such as nails, dirt, bits of wood).</p>	<p>Product intended to be cooked.</p> <p>Purchasing and Supplier (e.g., Letter of Guarantee that no fish/crustaceans will be harvested from contaminated areas and that no dead fish/crustaceans will be shipped).</p> <p>Receiving, Transportation and Storage.</p> <p>Allergen Control.</p> <p>Personal Hygiene and Training.</p> <p>Cleaning and Sanitation.</p> <p>Pest Control.</p> <p>Premises.</p>
1. Receiving Food Contact Processing Aid – salt water, fresh water (municipal water)	<p>Biological: Potential contamination due to presence of water borne pathogens (coliforms, <i>E. coli</i>, fecal coliforms).</p> <p>Chemical: Potential contamination due to presence of chemical residues (such as chlorine, lead).</p> <p>Physical: Potential contamination due to presence of foreign material (such as dirt, sand, and tiny rocks).</p>	<p>Salt water is purchased from Stanley Park Aquarium. Fresh water is from a reliable municipal system.</p> <p>Water samples from saltwater and freshwater tanks are sent and tested by 3<sup>rd</sup> party accredited laboratory yearly.</p>
1. Receiving Food Contact Packaging Materials – gel pack, wet foam, wax box (for crustaceans only)	<p>Biological: Potential contamination due to presence of pathogens at supplier level.</p> <p>Chemical: Potential contamination due to presence of allergens, chemical residues and sanitation chemicals at supplier level.</p> <p>Physical: Potential contamination due to presence of foreign material at supplier level.</p>	<p>All packaging must be received intact and with no damage. Any packaging with damage must be rejected.</p> <p>Purchasing and Supplier (e.g., Letter of Guarantee that all food contact packaging materials used must be food-grade quality and approved by Health Canada).</p> <p>Receiving, Transportation and Storage.</p>
1. Receiving non-food contact packaging materials – label, ink	None.	<p>Explanation as to why there is no identified hazard at this process step: Product is intended to be cooked. Labels with printed ink are placed on the outside of the wax box. Therefore, the non-food contact packaging material should not be in contact with the product or be a source of contamination.</p>

Process Step Number	Biological, Chemical, and Physical Hazards	Control Measures (can include: process steps, Standard Operating Procedures (SOPs), and Prerequisite Programs)
2. Sorting live fish and crustaceans only	<p>Biological: Potential contamination due to presence of, and growth of, pathogens (coliforms, <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>, <i>C. botulinum</i>, <i>Staphylococcus aerus</i>).</p> <p>Chemical: Potential contamination due to presence of cleaning/sanitizing chemicals.</p> <p>Physical: Potential contamination due to presence of foreign material (such as dirt, hair, bits of wood).</p>	<p>Product needs to be cooked before eating and only live fish and crustaceans are transferred to live holding tanks.</p> <p>Cleaning and Sanitation.</p> <p>Personal Hygiene and Training.</p> <p>Operational Controls (Sorting SOP).</p> <p>Premises.</p>
3. Storing – live holding	<p>Biological: Potential contamination due to presence of, and growth of, pathogens (coliforms, <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>) due to inadequate live holding storage condition.</p> <p>Chemical: Potential contamination due to presence of cleaning/sanitizing chemicals.</p> <p>Physical: Potential contamination due to presence of foreign material (such as dirt, hair, bits of wood, plastic, glass).</p>	<p>Storage SOP (e.g., Product is received alive and stored under appropriate storage condition. Product found dead in the live holding tank will be discarded).</p> <p>Premises.</p> <p>Equipment, Calibration and Maintenance.</p> <p>Personal Hygiene and Training.</p> <p>Cleaning and Sanitation.</p> <p>Receiving, Transportation and Storage.</p> <p>Operational Controls (Live holding water quality SOP includes water temperature, salinity level, nitrate level, etc.).</p>
4. Packaging/ Labelling/ Weighing	<p>Biological: Potential contamination due to presence of, and growth of, pathogens (coliforms, <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>, <i>C. botulinum</i>, <i>Staphylococcus aerus</i>).</p> <p>Chemical: Potential contamination due to undeclared allergens and presence of cleaning/sanitizing chemicals.</p> <p>Physical: Potential contamination due to presence of foreign material (such as dirt, hair, bits of wood, plastic, glass).</p>	<p>Packaging SOP (e.g., Every fish and crustacean is sorted to ensure that no dead products are packaged/shipped and that no broken or dirty packaging material is used).</p> <p>Labelling SOP.</p> <p>Cleaning and Sanitation.</p> <p>Personal Hygiene and Training.</p> <p>Equipment and Maintenance.</p> <p>Premises.</p>

Process Step Number	Biological, Chemical, and Physical Hazards	Control Measures (can include: process steps, Standard Operating Procedures (SOPs), and Prerequisite Programs)
5. Distributing/ Shipping	<p>Biological: Potential contamination due to presence of, and growth of, pathogens (coliforms, <i>Salmonella</i>, <i>Listeria</i>, <i>E. coli</i>) because of improper refrigeration temperature during shipping.</p> <p>Chemical: Potential contamination due to presence of cleaning/sanitizing chemicals.</p> <p>Physical: Potential contamination due to presence of foreign material (such as dirt, hair, bits of wood, plastic, glass).</p>	<p>For live fish, product is transported in a truck that has a built-in aluminium tank equipped with air pump and temperature regulator to ensure appropriate water temperature (cold saltwater product between 9-11°C or warm freshwater product between 22-25°C).</p> <p>For live crustaceans, product is fully packaged and equipped with gel packs inside to maintain the temperature between 0-4°C.</p> <p>Transportation and Storage.</p> <p>Personal Hygiene and Training.</p> <p>Cleaning and Sanitation (e.g., for the aluminium tanks and air pumps).</p> <p>Equipment, Calibration and Maintenance.</p>

**\*Based on the Critical Control Point Decision Tree for each hazard, there are no Critical Control Points (CCP) for the products or process. Therefore, the Critical Control Points Table is not required.**