** MONTANA WHOLESALE FOOD**

**FISH haccp Plan GUIDELINES**

Rev 11.14.14

The purpose of this document is to assist fish processors in developing a hazard analysis of critical control points plan (HACCP). A fish HACCP plan is a written document to help ensure that fish and fish products are safe for consumers.

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Fish HACCP plans are required by Montana rule ARM 37.110.101 (1) (x)/21 CFR 123.6. Failure of a processor to have and implement a fish HACCP plan shall render the fish and fish products adulterated, and subject to embargo or destruction, under the aforementioned state rule and state statutes MCA 50-31-509 or MCA 50-31-510.

The following criteria must be part of creating a fish HACCP plan:

1. **Hazard Identification**
2. **Critical Control Points List**
3. **Critical Limits List**
4. **Monitoring Procedures**
5. **Corrective Action Procedures**
6. **Verification Procedures**
7. **Records**
8. **Sign and Date Plan**

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| **Hazard Identification**  **The plan must include identification of physical, chemical and biological hazards that are reasonably likely to occur within the product.**  Some hazards associated with fish include, but are not limited to:   * Parasites inherent to the ingredient * Toxins (botulism, ciguatera, histamine, etc.) that occur in fish * Hazards that are introduced during processing procedures (e.g. temperature abuse, cross-contamination, etc.)   Typically, it’s easier to identify hazards if a food flow diagram or food flow description is created to illustrate food processing steps, from receiving ingredients to shipment of finished products, and all major steps or actions. |
| **Critical Control Points List**  **Create a complete list that identifies specific steps in the food processing procedure that are critical in controlling the identified hazards.**  Examples of critical points in need of control for fish are:   * Parasite destruction records from supplier of raw fish * Shellstock tags or labels from supplier of raw shellstock * Storage cold-holding temperature * Transport cold-holding temperature * Final cooking temperature * Final water activity level or water phase-salt concentration * Cooling parameters for time and temperature * Major allergen labeling * Brine (salt) concentration * Brine immersion holding time for product * Brine holding temperature for product to prevent histamine formation from fish that are from the scombroid toxin-forming species (e.g. tuna, herring, mackerel, sailfish, sardine, mahi-mahi, bluefish, yellowtail) |
| **Critical Limits List**  **Create a complete list that details the safety limit at which the process is still under control. In other words, if the limit is exceeded, the process is not under control and action needs to be taken to regain control.**  Examples of critical safety limits for fish include:   * Cold-holding temperature: 38 degrees Fahrenheit or less * Final cooking temperature: 145 degrees Fahrenheit or greater * Cooling parameters from 135 degrees Fahrenheit to 70 degrees Fahrenheit in 2 hours or less, and; from 70 degrees Fahrenheit to 38 degrees Fahrenheit in 4 hours or less * Packaging labels for products have all ingredients listed and major allergens declared in proper format * Water phase-salt concentration in the fish product of 20 percent or greater (0.85 water activity or less) * Internal water activity of dried fish to 0.85 or less |
| **Monitoring Procedures**  **Create a complete list that details the procedures and frequency used to monitor the critical points and critical limits.**  Examples of monitoring procedures for fish are:   * Visually checking for shellstock tags every time shellstock is received from supplier * Visually inspecting a representative sample of each batch for correct package labeling * Checking brine salt concentration for each batch of product with salometer, and recording the concentration in a log * Visually checking thermometers in refrigeration units each day for air temperature of unit, and recording the results in a log * Using a calibrated thermometer to check the final internal product cooking temperature for each batch, and recording the results in a log * Using a calibrated, automatic data-logging probe thermometer to record the cooling process for each batch of product, and keeping a log of the results * Checking internal water activity of a product by testing each batch with a calibrated meter, and recording the results in a log |
| **Corrective Action Procedures**  **Create a complete list that details the actions needed to correct exceedance of the limits.**  Examples of corrective actions for fish are:   * Rejecting shellstock that were delivered without proper tags or labels * Correctly re-labeling packages that were previously not properly labeled * Mixing a new brine solution * Destruction of products that were held in a refrigeration unit that was not properly functioning, or re-directing products to a properly functioning refrigeration unit * Destruction of products that were not properly cooked, or re-cooking the product, if possible * Destruction of products that were not properly cooled, or re-heating batch to 165 degrees Fahrenheit, and then properly re-cooling the product, if possible * Destruction of improperly brined fish, or re-brine to correct salt concentration, if possible * Destruction of improperly dried fish, or re-dry to correct water activity, if possible * Diverting any and all improperly handled product to non-human consumption use, if possible (e.g. livestock feed, etc.) |
| **Verification Procedures**  **Create a complete list that details procedures used to verify action was taken to address the limits exceedance.**  Examples of verification procedures for fish are:   * Daily records check by management of food processing logs, equipment calibration logs and data recording logs * Reassessment of entire HACCP plan * Daily review of product complaint log from consumers, carriers and vendors to determine whether the complaints relate to processes that are not in control (a consumer complaint or patterns of consumer complaints may indicate the need for a recall) * Calibration of testing equipment used for processing food |
| **Records**  **HACCP monitoring records must document the actual values and observations that were obtained during the monitoring procedures.**  The following list is required for fish processors that require a HACCP plan:   * Name and location of the processor * Date and time of the activity * Signature or initials of the person performing the activity * Documentation of the value or observation shall be done at the time the activity was monitored * Identity of the product and production code shall be on the record when appropriate * If the product needs refrigeration , keep records at the processing facility for at least 1 year after the date of processing * If the product is frozen or is shelf-stable, keep records at the processing facility for at least 2 years after the date of processing * All records and plans shall be available for inspection purposes by authorized USFDA officials at reasonable times |
| **Sign and Date Plan**  **The HACCP plan must be signed and dated.**  The HACCP plan must be signed and dated by either or both of the following:   * The most responsible person onsite at the processing facility, and/or * Higher level official of the processor   Signing the plan means it has been accepted for implementation. Also, the plan shall be signed and dated whenever the following applies:   * Upon initial acceptance * Whenever the plan is modified * Whenever the plan is reassessed during the verification procedure |

**Sushi Fish HACCP Plan EXAMPLE**

**PRODUCT**

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| **Product Name** | Salmon sushi roll |
| **Ingredients** | Rice, salmon, rice wine vinegar, seaweed, cucumber, avocado, wasabi paste |
| **Packaging** | Plastic trays, dome covers (sufficient oxygen transmission rate) |
| **Distribution** |  |
| **Consumer use** | Ready-to-eat product |
| **Firm Name** |  |
| **Firm Address** |  |
| **Signature** |  |
| **Date** |  |

**FOOD FLOW**

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| **STEP** | **FOOD** | **DESCRIPTION** |
| **Receiving** | Raw salmon (genus *Oncorhynchus*)  Vegetables  Prepackaged shelf-stable foods | Vacuumed packaged with oxygen transmission rate of 10,000 cubic centimeters per square meter every 24 hours or less. Package received in frozen state. Supplier provides parasite destruction record.  Raw cucumbers, rice, avocado  Seaweed, wasabi paste, rice wine vinegar |
| **Ingredient storage** | Raw salmon  Raw salmon  Raw salmon  Vegetables  Prepackaged shelf-stable foods | Freezer (at or below 0 degrees Fahrenheit) until thawing  Cut open salmon package  Thaw in refrigerator.  Dry storage area or refrigerator  Dry storage area |
| **Food processing** | Rice  Vegetables  Prepackaged shelf-stable foods  Seaweed roll  All ingredients | Cook and acidify to pH 4.1with vinegar. Acidify rice within 30 minutes of removing from cooking unit. A standardized acidified rice recipe will be used to ensure pH 4.1.  Wash and cut vegetables on designated vegetable cutting board. Incorporate cut vegetables into product.  Remove from packaging and incorporate into product.  Incorporate all ingredients into seaweed roll.  Cut roll into individual pieces. |
| **Product packaging** | Finished product | Package cut pieces using gloved hands. |
| **Product processing** | Finished product | Properly cooling product to 38 degrees Fahrenheit within 3 hours or less after mixing ingredients. Validate standard operating cooling procedure through documentation. |
| **Package labeling** | Finished product | Affix label to package |
| **Product storage** | Finished product | Storage in refrigerator at or below 38 degrees Fahrenheit immediately after packaging |
| **Product shipment** | Finished product | Shipment in insulated cooler with electronic control or under mechanical refrigeration. Product will be at or below 38 degrees Fahrenheit |

**HAZARD IDENTIFICATION** (of likely risks)

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| **STEP** | **HAZARD** | **PREVENTION** | **CRITICAL POINT** |
| **Receiving** | Biological-parasites-raw salmon | Parasite destruction record from supplier (record must state method of freezing: e.g. *-4 degrees Fahrenheit for 7 days, etc.*) | Yes |
| **Ingredient storage** | Biological- toxin from *C. botulinum* bacteria  Biological- toxin from *C. botulinum* bacteria  Biological- various bacteria from time/temperature abuse | Store frozen salmon in freezer until thawed.  Thaw frozen salmon in refrigerator after cutting open packaging to allow air flow  Thawing salmon in refrigerator with air temperature of 38 degrees Fahrenheit or less. | Yes  Yes  Yes |
| **Ingredient processing** | Biological-enterotoxin from *B. cereus* bacteria  Biological-various bacteria from time/temperature abuse  Biological-various bacteria from time/temperature abuse | Acidify cooked rice to pH 4.1 after cooking. Acidification to be completed within 30 minutes of removing from cooking unit, and before the cooked rice is135 degrees Fahrenheit during the cooling process.  A laboratory validated acidified rice recipe will be used to ensure pH 4.1.  Each batch will be tested using a calibrated pH meter with automatic temperature adjustment. Calibration of meter will be done using two buffer solutions.  Cut avocado is used, discarded or refrigerated within 60 minutes  Assembly of finished product within 60 minutes of removing salmon from refrigerator or cutting avocado. | Yes  Yes  Yes |
| **Package labeling** | Biochemical-major allergens | Verify that labels properly disclose major allergens that are in the product. | Yes |
| **Product processing** | Biological-various bacteria from time/temperature abuse | Cool product to 38 degrees Fahrenheit or less within 3 hours after mixing ingredients | Yes |
| **Product storage** | Biological-various bacteria from time/temperature abuse | Keep product at or below 38 degrees Fahrenheit | Yes |
| **Product shipment from firm to recipient** | Biological-various bacteria from time/temperature abuse during delivery | Carrier must keep product at or below 38 degrees Fahrenheit during transport. | Yes |

**HAZARD CONTROLS**

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| **CRITICAL POINT** | **CRITICAL LIMIT** | **MONITORING** | **CORRECTIVE ACTIONS** | **VERIFICATION** | **RECORDS** |
| **Receiving**: raw salmon | Parasite destruction record from supplier | By receiving manager for each delivery | Reject shipment | Visual inspection | Receiving log |
| **Storage**: raw salmon | At or less than 0 degrees Fahrenheit | By quality manager each day | Use immediately or discard, depending on ingredient temperature. | Visual inspection | Freezer log |
| **Storage**:  thawing salmon | Cut open reduced oxygen package | By quality manager each time package is thawed | Cut open package within 24 hours of removal from frozen state or discard | Visual inspection | Thawing log |
| **Storage**:  thawing salmon | At or less than 38 degrees Fahrenheit | By quality manager each day | Use immediately or discard, depending on ingredient temperature and elapsed time. | Visual inspection | Refrigerator log |
| **Processing**:  acidified rice | pH 4.1 within 30 minutes of removing from cooking unit | By quality manager for each batch | Discard or add vinegar to lower pH | Visual inspection | Acidified rice log  Recipe validation test results |
| **Processing**:  cut avocado  raw salmon  product assembly | Within 60 minutes of removing salmon from refrigerator and cutting avocado | By quality manager for each batch | Discard ingredients or product | Visual inspection | Assembly log |
| **Labeling**: | Failure to disclose all major allergens | By quality manager for each batch | Re-label package or recall | Visual inspection | Copy of label on  file  Documentation of incidents |
| **Processing:**  cooling product | At or less than 38 degrees Fahrenheit within 3 hours for mixing ingredients | By quality manager for each batch | Discard or divert to non-human consumption use | Visual inspection | Refrigerator log  Documented validation of standard cooling procedure |
| **Storage**: | At or less than 38 degrees Fahrenheit | By quality manager for each batch | Discard or divert to non-human consumption use | Visual inspection | Refrigerator log |
| **Shipping**: | At or less than 38 degrees Fahrenheit | By shipping manager for each shipment | Discard or divert to non-human consumption use | Visual inspection | Shipping log or data-logging temperature probe |

**HACCP Plan TEMPLATE**

**PRODUCT**

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| **Product Name** |  |
| **Ingredients** |  |
| **Packaging** |  |
| **Distribution** |  |
| **Consumer use** |  |
| **Firm Name** |  |
| **Firm Address** |  |
| **Signature** |  |
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**FOOD FLOW**

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| **STEP** | **FOOD** | **DESCRIPTION** |
| **Receiving** |  |  |
| **Ingredient storage** |  |  |
| **Food processing** |  |  |
| **Food packaging** |  |  |
| **Package labeling** |  |  |
| **Product storage** |  |  |
| **Product shipment** |  |  |

**HAZARD IDENTIFICATION** (of likely risks)

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| **STEP** | **HAZARD** | **PREVENTION** | **CRITICAL POINT** |
| **Receiving** |  |  |  |
| **Ingredient storage** |  |  |  |
| **Food processing** |  |  |  |
| **Package labeling** |  |  |  |
| **Product storage** |  |  |  |
| **Product shipment** |  |  |  |

**HAZARD CONTROLS**

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| **CRITICAL POINT** | **CRITICAL LIMIT** | **MONITORING** | **CORRECTIVE ACTIONS** | **VERIFICATION** | **RECORDS** |
| **Receiving**: |  |  |  |  |  |
| **Ingredient Storage**: |  |  |  |  |  |
| **Processing**: |  |  |  |  |  |
| **Packaging**: |  |  |  |  |  |
| **Product Storage**: |  |  |  |  |  |
| **Shipping**: |  |  |  |  |  |

**MONTH Shipping/Receiving Log**

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| **DATE** | **TIME** | | **INITIAL** | **FOOD** | | | | **COMPANY** | **TEMP** | | **ACTIONS** | |
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| **MONTH** | |  | | | **Refrigerator/Freezer Log Location** | | | | | | | |
| **DATE** | **TIME** | | **INITIAL** | **REFRIGERATOR** | | **TEMP** | **FREEZER** | | | **TEMP** | | **ACTIONS** |
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| **Cooling Validation Test**   |  |  |  |  | | --- | --- | --- | --- | | **FOOD** |  | **DATE** |  |     **GOALS**   1. Lower temperature of item from 135° Fahrenheit to at 70° Fahrenheit within 2 hours or less **AND/OR** 2. Lower temperature of item from 70° Fahrenheit to at 38° Fahrenheit within 4 hours or less   **INSTRUCTIONS**   1. Record internal product temperature AT LEAST every 30 minutes during the cooling cycle 2. If the goal times and temperatures are met, keep this document as part of your standard operating procedures 3. If the goal times and temperatures are not met, develop a new cooling procedure until the goals are achieved | | | | |
| **Cooling from 135**° **F to 70**°**F within 2 hours** | | | | |
| **Time** | **Temp** | **Method description** | | **Initials** |
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| **Cooling from 70° F to 38° F within 4 hours** | | | | |
| **Time** | **Temp** | **Method description** | **Initials** | |
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| **GOAL ACHEIVED** | **YES NO** |

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| **Assembly Temperature Log**  **MONTH** | | | | | | | | | | | |
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| **Thermometer Calibration Log**  **MONTH** | | | |
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| **pH Meter Calibration Log**  **MONTH** | | | |
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