

**Molluscan  
Shellfish  
Handling  
for Retailers**

**A Total Food Safety Management System Guide**

**For**

**MOLLUSCAN SHELLFISH**

## Molluscan Shellfish Handling for Retailers

Price:

85.00 FMI Members

200.00 Nonmembers

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Food Marketing Institute (FMI) conducts programs in research, education, industry relations and public affairs on behalf of its 2,300 member companies — food retailers and wholesalers — in the United States and around the world. FMI's U.S. members operate approximately 26,000 retail food stores with a combined annual sales volume of \$340 billion — three-quarters of all food retail store sales in the United States. FMI's retail membership is composed of large multi-store chains, regional firms and independent supermarkets. Its international membership includes 200 companies from 60 countries.

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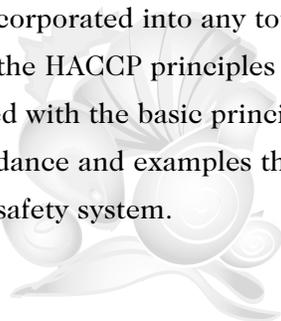
## INTRODUCTION

Food safety is defined as “those measures that are taken to ensure that foods can be eaten without adversely affecting the consumers. These measures deal with preventing, or at least minimizing contamination of foods; killing microbial contaminants or denaturing toxins; and inhibiting the growth of pathogenic microorganisms in food.” (Source: FMI’s “A Program to Ensure Food Safety in the Supermarket – The Hazard Analysis Critical Control Point System,” prepared by Frank Bryan, Ph.D., M.P.H., 1989.)

The retail grocers and wholesalers have long recognized food safety as one of their highest priorities. Food safety has emerged as a major concern for consumers, government agencies and all sectors of the food industry. Consumers are more informed and have higher expectations regarding the safety of the foods they buy. State and local regulators, the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) have responded by issuing regulations, guidelines and new policies to address the many food safety concerns.

Retail grocers and wholesalers have implemented a variety of programs to further reduce the risk of potential hazards and to provide greater consumer protection. Systems for enhancing food safety at retail are varied, but they all include many of the same basic principles. Among these are sanitation, employee health and hygiene, training and education, good retail practices (GRPs) and standard operating procedures (SOPs). This guide explains the importance of designing and applying a total food safety system for molluscan shellfish handling by retailers. This guide also incorporates the principles of Hazard Analysis and Critical Control Point (HACCP). HACCP is a preventive approach designed to minimize food safety hazards through process control. HACCP is not a stand alone program, nor is it a “one size fits all” approach.

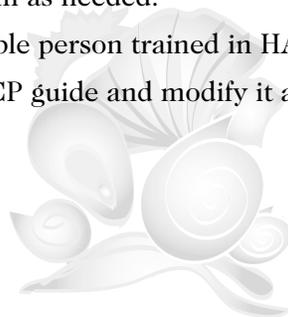
The seven principles of HACCP can be useful tools in designing better process controls, and these controls can then be incorporated into any total food safety management system. In developing this guide, the HACCP principles were used to assess risk and identify effective controls. Coupled with the basic principles mentioned above, this guide provides general information, guidance and examples that can be customized to develop and implement a successful food safety system.



## HOW TO USE THIS GUIDE

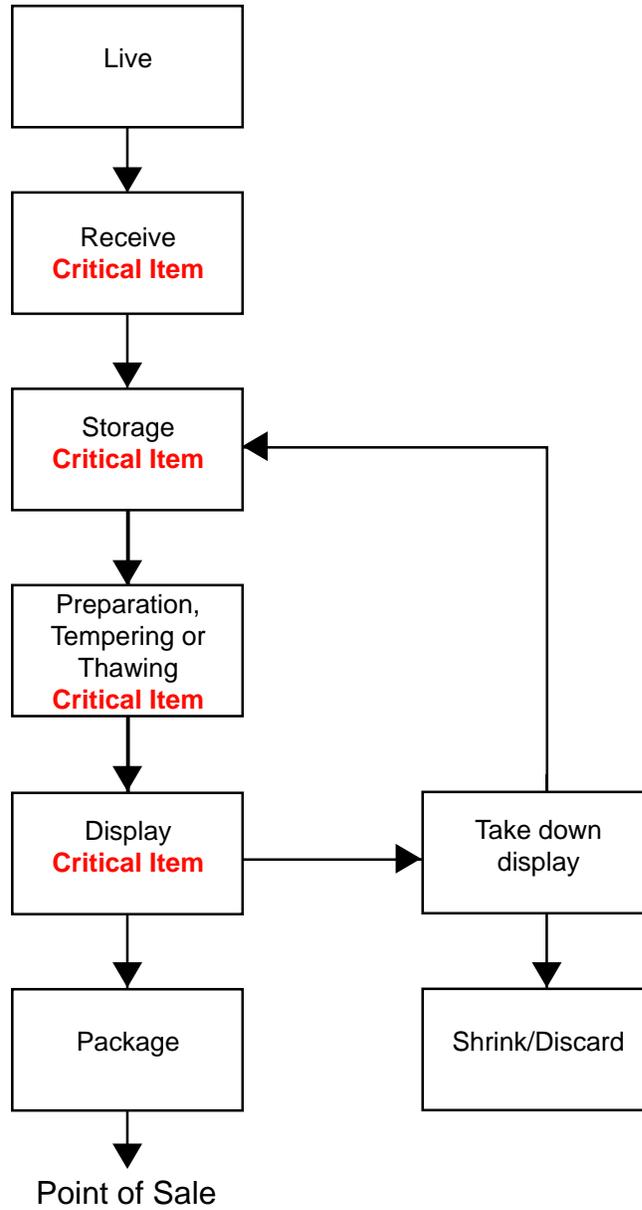
Getting started is usually the hardest part of developing any program. This guide presents examples and information that should assist in developing a store-specific program for the safe handling and sale of molluscan shellfish. The following steps are recommended to help you develop and implement a successful program.

1. Establish a food safety team and identify the team leader. The team should have at least one individual with food safety training.
2. Have the team develop a flow chart and product description for each process category or product. A clear, simple flow diagram that includes each step of production is necessary. The flow diagram should reflect the specific steps in each operation. The product description will help the team identify the product and its intended use. Examples of flow charts are provided in this guide and should be modified as needed to meet the individual store's operation (Exhibits 1 and 2).
3. The team should develop the Good Retail Practices (GRPs) for each store based on the FDA *Food Code* and other food safety information. Examples of GRPs are provided in this document.
4. The team should develop specific step-by-step instructions or Standard Operating Procedures (SOPs) for each food safety activity or job task. The team may want to include the personnel currently performing the task in this activity. The SOPs are excellent tools for training employees. Examples of SOPs are provided in this guide and should be modified as needed to meet the individual store's operation.
5. Develop store-specific monitoring activities and record system.
6. Train the store employees who will be actively involved with implementing the food safety system. Employee training is a vital aspect of successful implementation.
7. Implement the food safety system.
8. Conduct a reassessment of the store's food safety system as needed, but at least annually. Revise the system as needed.
9. Stores that have an available person trained in HACCP may wish to use this individual to review the HACCP guide and modify it as needed to meet the specific operations of their store.



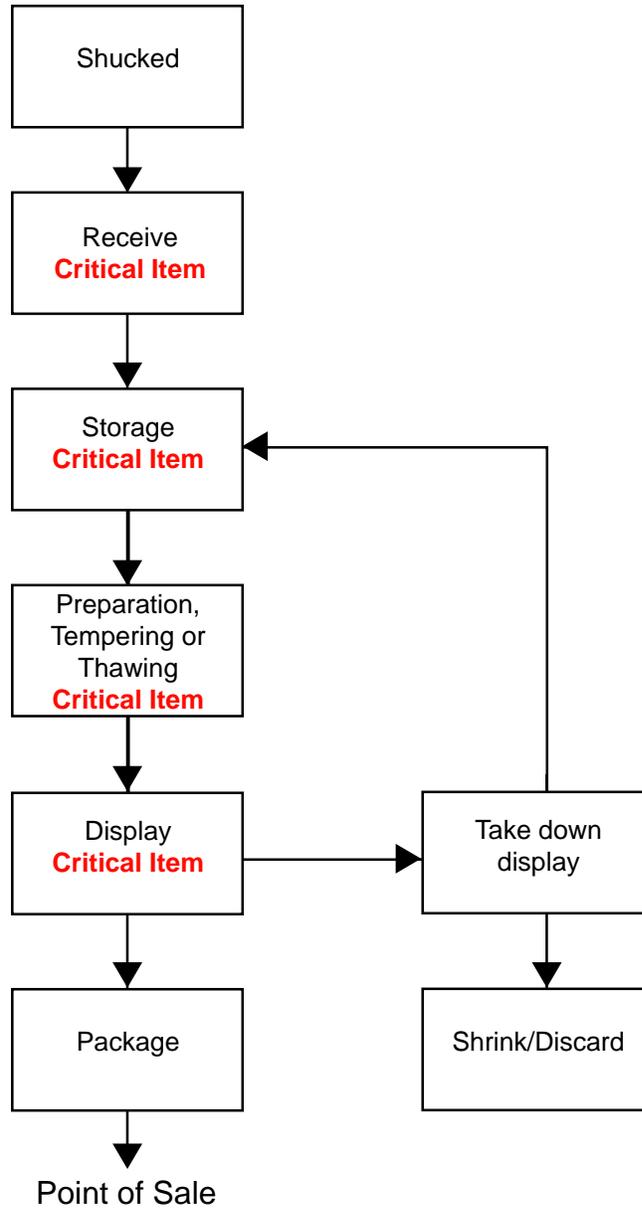
# Exhibit 1

## Flow Chart for Live Shellstock



## Exhibit 2

### Flow Chart for Shucked Shellfish



## GOOD RETAIL PRACTICES (GRPs)

### Introduction

Good Retail Practices (GRPs) are similar to the Good Manufacturing Practices (GMPs). The FDA defines them in 21 CFR Part 110 as the minimum sanitary and processing requirements for food companies. However, GRPs focus specifically on the retail operation using the FDA *Food Code* as the sanitary standard. The GRPs examples provided in this document are not a complete guide. Rather, they are intended to provide an introduction and direction for “getting started” with developing GRPs specific to your facility and operation. Please keep in mind that local regulatory standards may differ and should be referenced as you develop your own GRPs.

### Receiving Shellfish

The FDA publishes a monthly list of approved shellfish dealers, which is available at the FDA Web site at <http://www.fda.gov>. This Interstate Certified Shellfish Shippers List (ICSSL) includes only those dealers who comply with the requirements of the National Shellfish Sanitation Program (NSSP) Manual and the Good Manufacturing Practices of the Federal Food, Drug and Cosmetic Act. The ICSSL is your first step in obtaining wholesome shellfish. If your supply comes from Intrastate Shippers, check with your local State Shellfish Control Agency. Protect yourself and your customers by purchasing shellfish from certified suppliers only.

### Live Shellstock

Designated receiving employees should verify that live shellstock are received from an approved shellfish dealer that is listed in the current ICSSL. The containers should possess appropriate tags and labels. These tags provide important information to retailers:

- Name and address of dealer
- State certification number
- Harvest location
- Harvest date
- Quantity and type of shellfish



Verify the quality, condition and wholesomeness of the shellfish.

- Are the shellfish alive? Check for gaping of the shells. If the product remains partially open after tapping and/or agitation, the shellstock are dying or dead. NEVER accept dying or dead shellfish. NEVER accept shellstock with broken shells.
- Are the shellfish clean? Check that the product has been washed to remove excessive mud, sand or debris. The first washing usually takes place at the harvest location.
- Check the package. Accept only those products that arrive in clean, intact packages/containers.
- Live shellstock should be received at 50°F or less.

### **Shucked Shellfish**

Are the shucked shellfish properly labeled and packed?

- Legible labels should identify the name, address and certification number of the shucker/packer or repacker of the shellfish.
- Packages less than one-half gallon should bear a “sell-by” date. Packages with a capacity of one-half gallon or more should bear the date shucked.

Verify the quality of the shucked shellfish. Shucked oyster, clam and scallop meats should be firm, plump and creamy white in color and without offensive odor.

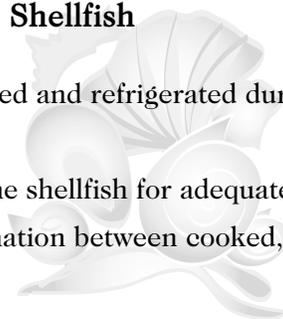
Verify temperature of delivered shucked shellfish.

- Refrigerated shucked shellfish should be received at 45°F or less.
- Frozen shucked shellfish should be received hard frozen with no evidence of thawing.

### **Live Shellstock and Shucked Shellfish**

Were the products properly handled and refrigerated during transport?

- Check the placement of the shellfish for adequate airflow and separation. Make sure there is no cross contamination between cooked, raw and live product.



The designated receiving employee should verify what they ordered against what was received:

- Check the size, count and product condition.
- Was the shellfish properly stored and protected during transport?

Have you done a final check on the product?

- Make sure shucked shellfish containers are placed in ice without submerging the top edge of the container.
- Discard any products with broken seals on the container.
- Discard any products past the “sell-by” date.
- Make sure all frozen products are labeled “frozen” with no excess frost.

### Storage Guidelines

Once the shellfish is accepted it should be immediately placed in appropriate storage. Freezers and coolers should be monitored and maintained to ensure proper temperature control. Refrigeration equipment should be equipped with a calibrated thermometer that is easily accessible for viewing. The use of temperature recording devices and alarm systems is recommended.

Never expose shellfish to extreme temperature changes. This may result in loss of quality or death of live shellstock.

- Live shellstock should be stored at 41°F or less.
- Refrigerated shucked shellfish should be stored at 41°F or less. Individual containers may be stored in ice.
- Frozen shucked shellfish should be stored frozen, preferably at 0°F or less.

Avoid cross contamination. Store shellfish in a specific, pre-designated area in the refrigeration unit, away from other raw or cooked foods. Keep shellstock containers six (6) inches above the floor, away from walls and ceilings, and preferably on non-wooden supports, shelving or surfaces.

Use an inventory rotation system for ensuring the first product in is the first product out (FIFO). Rotate older products to the front of storage shelves.

Always store shellfish in their original containers. Do not commingle shellfish (fresh, frozen or live) from different sources, lots, “sell-by” dates or date shucked.

Maintain labels on the packages so the shellfish source may be traced.

<p style="text-align: center;"><b>REMEMBER</b> ...Keep it cool ...Keep it clean ...Keep it moving</p>
---

## Preparation Guidelines

### Tempering/Thawing of Frozen Shucked Shellfish

Frozen product may be safely thawed using one of the following procedures:

- Under refrigeration that maintains the product at 41°F or less; or
- If in sealed packages that prevent entry of water, submerge completely under running water at a temperature of 70°F or less for a period that does not allow the product to rise above 41°F.

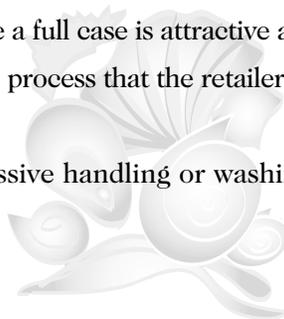
Product temperature during thawing should be monitored on a scheduled basis to ensure that the end temperature of 41°F is not exceeded.

Maintain a system for tracking all shellfish and shellstock to allow for efficient and effective product lot identification and traceability. Tags are required to be attached to the shellfish containers until emptied and thereafter retained in chronological order for 90 calendar days from the date the container is emptied.

## Display Guidelines

Proper display of shellfish and shellstock is one of the most critical areas in maintaining quality, wholesomeness and freshness. While a full case is attractive and appealing to customers, the arrangement of shellfish is a delicate process that the retailer must constantly monitor.

Shellfish do not benefit from excessive handling or washing, but sometimes the product may require a surface rinse.



- Use clean, cold, drinking (potable) water to briefly rinse the live shellfish.
- Never place or soak the product in freshwater. This could cause cross contamination or death of the live shellfish.

Shellfish may be removed from their original container for display as an employee-dispensed bulk displayed product. If shellfish are removed from their tagged or labeled container, use only one tagged or labeled container at a time. Do not commingle shellfish (fresh, frozen or live) from different sources, lots, “sell-by” dates or date shucked.

Shellfish should be displayed only in designated display cases, away from other raw or ready-to-eat products and in a manner to prevent cross contamination.

When ice is used as a coolant within the display case, the shellfish (fresh, frozen or live) should be placed in clean and sanitized display containers to prevent direct product contact with the ice. Warm-water shellfish (clams and mussels) should never be placed in direct contact with ice.

Shellfish should be displayed at the following temperatures:

- Live shellstock displayed at 41°F or less. For best quality store at 35°F – 40°F.
- Refrigerated shucked shellfish at 41°F or less. Individual containers may be stored in ice. For best quality store at 32°F – 35°F.
- Frozen shucked shellfish in a hard frozen state.

Display equipment should possess a permanent, visible, non-glass, calibrated thermometer or temperature measuring device that measures the representative case temperature. The designated seafood market employee should monitor the display case temperatures and take corrective action when display cases exceed required display temperatures.

Use cleaned and sanitized equipment to dispense shellfish and shellstock. Store the dispensing utensils:

- In the food with the handle out of the food.
- On a clean surface, where utensils and surface are cleaned and sanitized every four hours.
- For ice utensils, place them in a clean protected location and clean and sanitized daily.

### **Wet Tank Display/Storage**

Retailers may use wet tanks to display live molluscan product. Wet tanks are storage systems that use saltwater baths or sprays to keep the product fresher for longer periods of time. These tanks should be serviced in accordance with the manufacturers' instructions to ensure the use of clean water and the safety of the shellfish.

Most shellfish tanks use a triple filtration system:

- Double-sided filter pad — removes solid waste.
- Ultraviolet light system — sterilizes the water before it is sprayed back on the shellfish.
- Spray bar — continuously removes direct and waste products from shellfish.

### **Personal Health**

Employees with diarrhea, fever, vomiting, jaundice, sore throat with a fever or diagnosed with a communicable disease must report these symptoms or diagnosis to their supervisor immediately. These employees must not work in the retail environment and should stay home for the term of their illness.

An employee with an open wound, abrasion, boil or lesion containing pus on the hand or wrist must wear an impermeable cover, such as a finger cot or stall to protect the wound, and a single-use glove.

### **Personal Hygiene**

All employees should wash their hands before and after contact with product. Proper handwashing means washing hands and exposed portions of your arms by:

- Vigorously rubbing hands together, lathering soap and using hot water for at least 20 seconds.
- Rinsing with clean water.
- Drying with disposable paper hand towels, clean continuous dispenser towels or air dryers.



Always wash your hands:

- Before starting work.
- After using the restroom.
- After eating, drinking or using tobacco products.
- After coughing, sneezing or using a handkerchief or a disposable tissues.
- Anytime you touch your face, your hair, your nose or ears.
- After handling soiled equipment.
- When switching from raw foods to ready-to-eat foods.
- Anytime you change tasks.

All employees should wear clean outer clothing and effective hair restraints approved by the company. Fingernails should be kept trimmed, filed and maintained so the edges and surfaces are cleanable and not rough. Jewelry on the arms and hands should be limited to a plain ring and/or a medical bracelet — otherwise, no jewelry.

Use single-use, disposable plastic or vinyl gloves to reduce the opportunity for cross contamination from hands when:

- Touching ready-to-eat foods.
- Touching fresh, frozen or live shellfish and shellstock.
- For covering “slash resistant” safety gloves.

Integrate glove procedures along with proper handwashing and use of utensils as appropriate. Change gloves frequently and when changing job tasks.

Start a daily and routine in-house inspection of the entire seafood retail area to encourage good handling and personal hygiene practices. Remember to wash, rinse and sanitize all utensils, as well as the wash area, on an ongoing basis. Be a good housekeeper. Your customers will recognize your commitment.

### **Employee and Customer Education**

The popularity of molluscan shellfish has increased dramatically over the past decade. Oysters, clams, mussels and scallops are all seafood delicacies that are traditionally enjoyed raw or partially cooked. As this popularity increases, teach all employees

involved with shellfish operations the basic principles involved in the purchase, handling and display of shellfish.

As the employee's knowledge and competence increases, encourage them to share information about the product and the special precautions needed with their seafood customers. Point-of-purchase educational materials and consumer brochures explaining how to handle and prepare shellfish are vital resources in assisting your customers to get the most out of their seafood experience. These communication resources may additionally assist to educate your customers about the health benefits and risks associated with consumption of raw or undercooked shellfish, especially vulnerable populations.



## Model Standard Operating Procedure (SOP)

The foundation of any food safety program is identifying and controlling basic environmental and operating conditions necessary for the safe handling, storage and sale of food. Each store should establish their own specific Standard Operating Procedures (SOPs), which prescribe necessary processing and control steps to be accomplished on a routine basis. SOPs provide a written reference that may be used to evaluate the food safety system, used to train food employees who are responsible for each task and serve as a reminder of essential procedures. The SOPs provided on the next several pages are intended to provide examples of daily tasks to consider within your operations. It is important that each facility develop SOPs specific to their operation and environment.

Remember, keep SOPs simple and readily accessible to all department employees. Each SOP should contain:

- Title of the task to be completed
- Date the SOP was issued
- Area or department to be used
- Detailed, specific actions that need to be taken to complete the task
- Any documentation that needs to be completed to verify the task was accomplished
- Approval signatures



# Model Standard Operating Procedure (SOP)

## Receiving (Example)

### Background Notes

Date effective: 4/5/01

- This procedure outlines the characteristics of a load that needs to be evaluated at receiving.
- Shipments not meeting minimum requirements should be rejected unless approved by Store Management.

Departments: Seafood Department

### Specific Instructions:

#### Documentation

- **Critical Item — Confirm that the shipment is received from a certified interstate shipper, approved in-state dealer or licensed harvester as listed in the Interstate Certified Shellfish Shippers List (ICSSL).**
- Determine if containers are properly tagged and labeled with appropriate shellstock tags, labels and dates.

#### Load Evaluation

- Evaluate the delivery truck for cleanliness.
- Evaluate the load for any suspicious odors.
- Look for evidence of pest infestation or contamination.
- Look for evidence of torn or damaged cases.
- Verify the product identity and quality with purchase order/shipping manifest.
- Look for evidence of temperature abuse of temperature-sensitive products (wet cases, ice on cases, etc).
- **Critical Item — Check product temperatures: 50°F or less for live shellstock and 45°F or less for shucked shellfish.** For full-load deliveries, check front, middle and back of trailer. Check product temperature against product specifications.

#### Product Unloading

- Evaluate product as it is being unloaded. If high numbers of torn or damaged cases are observed during unloading, contact department management immediately.
- Date product with the date of receipt. If a full pallet is received, date the product underneath the shrink-wrap so it is not lost when the plastic is removed.
- Rapidly move product into refrigerated storage or display. No product should remain on the loading dock for more than \_ hour after receipt.

#### Monitoring

##### Each Delivery:

- Visual inspection by receiving personnel for cross contamination and temperature abuse. Notify department manager for non-acceptable product to determine rejection status.
- Evaluate product temperature throughout the delivered load (front, middle and end).

##### Corrective Action:

- Do not accept product if above 50°F for live shellstock or 45°F shucked shellfish. Notify department manager immediately.
- Do not accept frozen products received thawed or showing evidence of thawing. Notify department manager immediately.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Refrigerated Storage (Example)

### Background Notes

Date effective: 4/5/01

- This procedure outlines the characteristics of refrigerated storage in the seafood market area.
- Included are proper placement of product in the refrigerated storage, as well as rotation issues and temperature control procedures.

Department: Seafood Department

### Specific Instructions:

#### Proper Placement of Product in Cooler

- **Critical Item - Store live shellstock and shucked shellfish at 41°F or less.**
- Store frozen product in freezer (preferably 0°F or below).
- Avoid cross contamination. Store ready-to-eat products away from or on shelves above raw products. Under no circumstance should raw product be stored next to or above ready-to-eat products.
- Place all raw product on the bottom shelf of the cooler. Raw shellfish should be placed on drip pans or in tubs to prevent leaking on the cooler floor.
- Rotate product using First In – First Out (FIFO) system. Rotate older products to the front of the storage shelves.
- Product dates should be evaluated during rotation and prior to use. Any product that is beyond the “use-by” date should be discarded.
- Store shellfish in clean, dry locations and away from splash, dust or drippage; and away from leaking water lines, sewer lines and fire sprinkler systems.
- Store shellfish at least 6 inches off the floor, on clean shelves, dollies, racks or pallets.
- Protect packaging materials, such as trays and wrapping materials, from contamination.
- Use approved ice as a coolant for fish and shellfish.

#### Monitoring

- Always check product temperature with a calibrated thermometer.
- Check frozen product temperatures twice daily. Check refrigerated product temperatures three times daily.
- Temperature should be taken by probing product that has been in the cooler for more than 24 hours.

#### Corrective Action

- If refrigerated temperature is found to be above 41°F on the initial product temperature, take two additional temperatures.
- If two of the three temperatures taken are above 41°F, notify department manager immediately.
- Record all temperatures on the temperature log.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Cleaning and Sanitizing Equipment (Example)

### Background Notes

Date effective: 4/5/01

- This procedure outlines the characteristics of proper cleaning and sanitizing procedures in the seafood market area. Included are proper cleaning, rinsing and sanitizing steps.

### Frequency:

- Daily.
- Follow suggested equipment manufacturer's cleaning procedures.

### Department: Seafood Department

### Specific Instructions:

#### In-Sink Items (Three-Compartment Sink Process)

- Clean and sanitize smaller items such as pots, pans, utensils, knives, etc.
- Clean and sanitize the three-compartment (or approved two-compartment) sink.
- Pre-clean or remove scraps from equipment.
- Wash dirty or soiled equipment and utensils thoroughly in first sink, in hot, soapy water. Be sure to remove all grease and fats. Wash water needs to be changed frequently.
- Rinse cleaned equipment and utensils completely in the middle or second sink, in hot, clean and clear water. Rinse water should be changed frequently to avoid carrying over soap, grease or food particles into the sanitizer.
- **Critical Item - Completely immerse cleaned and rinsed equipment and utensils in the last or third sink, in sanitizer solution for at least one minute or as recommended on the manufacturer's label for sanitizer solution preparation and use.**
- Drain and air dry. Store cleaned, sanitized items where they will stay sanitary.

#### For Large Items and Equipment

- Remove all food, debris, packaging and processing supplies from the work area.
- Breakdown all equipment for cleaning. Clean and sanitize small pieces of equipment in the three-compartment sink when possible.
- Pre-clean or remove scraps from equipment.
- Scrub with hot, soapy water using the *bucket and brush* method.
- Rinse completely with warm, clean and clear water. Repeat soap and scrub, followed by second rinse.
- **Critical Item - Sanitize by spraying or pouring sanitizer solution directly onto the food contact surfaces. Dip small, removable parts in sanitizer solution in three-compartment sink set-up. DO NOT rinse after sanitizing. Follow instructions on the manufacturer's label for sanitizer solution preparation and use.**
- Air dry. Position all items so they will drain and dry completely.
- Reassemble at beginning of next shift.
- Apply approved food-grade mineral oil as necessary to protect equipment.

#### Work Surfaces (Counters, Cutting Boards, etc.)

- Remove all food, debris, packaging and processing supplies from the work area.

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- Clean and sanitize small pieces of equipment in the three-compartment sink when possible.
- Pre-clean or remove scraps from equipment.
- Scrub with hot, soapy water using the *bucket and brush* method. Be sure to remove all grease and fats.
- Rinse completely with warm, clean and clear water.
- **Critical Item - Sanitize by spraying sanitizer or by wiping with clean cloths soaked in sanitizer solution. DO NOT rinse after sanitizing. Follow instructions on the manufacturer's label for sanitizer solution and air dry. Position all items so they will drain and dry completely.**
- Store clean cloths in sanitizer solution for use as wiping cloths during the shift.

**Mixing Instructions for Sanitizer Solutions**

- Follow instructions on the manufacturer's label for solution preparation and use. DO NOT use more sanitizer than called for by the instructions. Test the strength of sanitizer solutions after preparation and after in-sink use for over one hour. Special test kits, such as color indicators strips, should be used for this purpose and are available from chemical supply stores. Be sure to keep a record of tests.

**Monitoring**

Daily: Department Managers should:

- Visually inspect cleaned and sanitized equipment for any visible soil.
- Measure sanitizer concentration prior to use and once every hour during use. Utilize pH test strip paper indicator.
- Visually observe equipment and operation for potential of cross contamination.

**Corrective Action**

- Replace dirty wash and rinse water when needed.
- Re-wash dirty equipment and utensils not properly cleaned during first wash/rinse cycle.
- Follow manufacturer's label instructions for mixing sanitizer level to the correct concentration.
- Record sanitizer concentration level on daily sanitation reports.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Personal Health and Hygiene (Example)

### Background Notes

Date effective: 4/5/01

- This procedure outlines personal health, hygiene and handwashing requirements required for the safe handling and sale of foods.
- Employees diagnosed with a food-related illness or showing symptoms of an illness are not permitted to work with food, food contact equipment, utensils or surfaces.
- Employees with festering cuts, abrasions, boils or any condition that may cause flaking of exposed skin may not have contact with food or food contact items.

Departments: All Departments

### Specific Instructions:

- **Critical Item - Only healthy employees are permitted to handle food, food contact equipment and utensils.**  
Employees who have been diagnosed with a food-related illness or are experiencing symptoms (sore throat with fever, diarrhea, vomiting or jaundice) must immediately notify their supervisor and remove themselves from the food environment.
- **Critical Item - Employees with festering cuts, abrasions, boils or any condition that may cause flaking of exposed skin must immediately notify their supervisors and remove themselves from the food environment.**  
An infected wound must be freshly and properly bandaged and covered with an impermeable cover (surgical-type gloves), which will prevent contact with food or food contact items.
- Bath daily and have clean, well-groomed hair. Present a clean appearance.
- Wear clean, washable outer garments, clean apron and clean shoes. Safety shoes may be necessary.
- Wear clean, effective hair restraint.
- Have clean hands and fingernails. False fingernails and nail polish are not permitted.
- Employees must avoid wearing any jewelry. *Plain wedding bands and medical identification bracelets may be exempt.*
- **Critical Item - All employees must wash their hands and exposed portions of their arms thoroughly:**
  - a) Before starting work.
  - b) After using the restroom.
  - c) After eating, drinking or using tobacco products.
  - d) After touching their mouth or anything that has been in their mouth.
  - e) After touching their hair, nose, ears, etc.
  - f) After handling trash, garbage, dirty utensils or soiled equipment.
  - g) After sneezing or coughing into their hands, or using a handkerchief or disposable tissue.
  - h) After changing from raw to cooked or ready-to-eat foods.
  - i) After any absence from the work area.
- **Critical Item - Washing hands and exposed portions of arms is accomplished by:**
  - a) Vigorously rubbing hands together, lathering soap, using hot water for at least 20 seconds.
  - b) Rinsing with clean water.
  - c) Drying with disposable paper hand towels, clean continuous dispenser towels or air dryers.
- Avoid bare-hand contact with any ready-to-eat foods, including shellfish. Use single-use gloves, deli tissues or utensils to handle product. Change single-use gloves frequently to prevent contamination. *Remember that gloves are not a substitute for proper hand washing.*
- Remove personal items from pockets where they may fall into food, such as cigarettes, lighters and pens.

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- Employees may only eat, drink, smoke or chew (tobacco or gum) in designated break areas.
- Employee street clothing, personal belongings or personally-owned foods and beverages should be stored in designated areas.

**Monitoring**

**Daily: Department managers should visually observe employees for:**

- Symptoms of illnesses or skin infections.
- Proper handwashing practices and frequency.

**Corrective Action**

- Refer all employees diagnosed with a food-related illness, displaying symptoms of illnesses or skin infection immediately to department manager.
- Refer employees to repeat hand washing procedures.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Maintenance of Hand Washing, Hand Sanitizing and Toilet Facilities (Example)

**Background Notes**

Date effective: 4/5/01

- All food establishments shall be equipped with easily accessible hand washing, hand sanitizing and toilet facilities that are properly equipped with water, hand soap and hand drying facilities.

**Departments: All Departments**

**Specific Instructions:**

- Toilet facilities should be physically separated from food preparation and handling areas.
- Toilet facilities should have self-closing doors, be maintained in good repair and cleaned daily at the end of the shift or more frequently if necessary.
- Hand washing facilities provided in raw and cooked food processing and handling areas and in the toilet facility should have:
  - a) Hot and cold running water (*prefer foot activated valves*).
  - b) Hand soap.
  - c) If used, hand sanitizer solution that is changed every four hours during food processing and handling.
  - d) Hand drying service (towel or air).
  - e) Signs directing workers to wash their hands and gloves thoroughly and sanitize them before starting work, after each absence from their workstation, and anytime they have become soiled or contaminated.
  - f) Refuse receptacles.

**Monitoring**

**Daily:**

- Department managers should visually inspect toilet and hand-washing facilities for cleanliness and the presence of hand washing supplies.

**Corrective Action**

- Department managers will initiate re-cleaning of dirty toilet facilities and correction of any potentially contaminating condition. Repairs should be made as needed.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Exclusion of Pests (Example)

### Background Notes

Date effective: 4/5/01

- All food establishments should have active, integrated pest management programs to eliminate harborage areas and prevent pest entry into the facility, ongoing monitoring for the presence of pests and corrective action when pests are identified and found within the food establishment.

### Departments: All Departments

### Specific Instructions:

Our [company] has a contract with a licensed pest management company to treat the outside of the building every other month. This company evaluates the interior of the building and treats as necessary. The facility grounds and interior areas should be kept free of litter, waste and other conditions that may attract pests. Keep outer facility doors closed when not in use. Outside entrances will be equipped with screens, plastic curtains or operating air curtains. Electric bug-killing devices should be located outside entrances to processing areas. Food employees should report any pest problems to their immediate department manager.

### Monitoring

Department managers should:

- Monitor food preparation and storage areas daily for evidence or presence of rodents, birds or insects.
- Review reports of pest treatment.
- Conduct visual inspections of the facility's exterior and interior daily.

### Corrective Action

- The pest management firm is notified of any pest problem. Pest treatments may be performed more frequently if re-occurring problems are identified.

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Model Standard Operating Procedure (SOP)

## Protection of Food, Food-Packaging Material and Food-Contact Surfaces from Adulteration with Lubricants, Fuel, Pesticides, Cleaning Compounds and Sanitizing Agents (Example)

**Background Notes**

Date effective: 4/5/01

- This procedure outlines the protection of food, food-packaging material and food contact surfaces from exposure and contamination from chemical and toxic agents.

**Departments: All Departments**

**Specific Instructions:**

- Use only approved cleaning compounds, sanitizers and lubricants used in processing and packaging areas. These chemicals are listed in the NSF International "List of Proprietary Substances and Nonfood Compounds (formally maintained by the U.S. Department of Agriculture, Food Safety Inspection Services (USDA FSIS), Publication No. 1419).
- Food-grade and non-food-grade chemicals and lubricants are stored separately outside processing and packaging areas.
- Food, food-packaging materials and food-contact surfaces are protected from adulteration from biological, chemical and physical contaminants.
- Cleaning compounds, sanitizing agents, lubricants, and pesticide chemicals are properly labeled and are stored outside processing and packaging areas and separately from packaging materials. Food-grade chemicals and lubricants are stored separately from non-food-grade chemicals and lubricants.

**Monitoring**

**Daily**

- Check invoices at receiving point before chemicals are stored in the food-grade chemical storage area. Department managers should inspect chemical storage, processing and packaging areas daily before production begins.
- Sanitation supervisor inspects chemical storage areas daily.

**Corrective Action**

- Unapproved chemicals are returned or used in non-processing areas. Improperly stored chemicals are moved to the correct storage area. Sanitation supervisor initiates correction of any potentially contaminating condition. Repairs are made as needed.
- Remove unlabeled chemicals from storage areas and properly dispose. Improperly stored chemicals are moved to correct storage areas.

**Record Keeping**

- Keep invoices of food-grade chemicals and lubricants.

Signed \_\_\_\_\_ Date \_\_\_\_\_

## Chemicals Approved for Use in Supermarkets

Revised 11/06/00

Chemical	Strength	Dilution
<b>Chlorinated Alkaline Cleaner</b> <b>Brand:</b> Brand X <b>Usage:</b> Equipment, food-contact surfaces, utensils, toilet facilities		1 ounce of concentrate to 3 gallons of water
<b>Liquid Sanitizing Hand Soap</b> <b>Brand:</b> Brand Y (E-2) <b>Usage:</b> Hand washing facilities		Undiluted
<b>Sodium Hypochlorite Sanitizer</b> <b>Brand:</b> Brand Z <b>Usage:</b> Food-contact surfaces, utensils	100 ppm	1 ounce of concentrate to 6.5 gallons of water
<b>Quaternary Ammonium Sanitizer</b> <b>Brand:</b> Brand A <b>Usage:</b> Floors and shoe sanitizing baths	400 ppm	1 ounce of concentrate to 2 gallons of water
	800 ppm	1 ounce of concentrate to 1 gallon of water
<b>Iodine Sanitizer</b> <b>Brand:</b> Brand B <b>Usage:</b> Hand sanitizing solutions	25 ppm	1 ounce of concentrate to 13 gallons of water
<b>Lubricants</b> <b>Brand:</b> Brand C (H-1) <b>Usage:</b> Food processing equipment <b>Brand:</b> Brand D (H-2) <b>Usage:</b> Non-food processing areas		

Signed \_\_\_\_\_ Date \_\_\_\_\_

# Hazard Analysis

(1) Processing Step	(2) Potential hazards B=Biological P=Physical C=Chemical	(3) Are hazards significant? (Yes/No)	(4) Justify your decision for column 3	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point (CCP)? (Yes/No)
Receiving live shellfish or shucked shellstock meat	BIOLOGICAL Bacterial pathogen contamination	Yes	Some shellfish may be eaten raw. Shellfish or shellstocks are easily contaminated with pathogens from harvesting waters.	Only accept shellfish or shellstocks from waters open to harvesting. Require proper tagging.	Yes
	CHEMICAL Chemical contamination	Yes	Industrial pollution frequently occurs in estuarine waters. Shellfish or shellstocks may become contaminated with these pollutants.	Only accept shellfish and shellstocks from waters open to harvesting. Require proper tagging.	Yes
	CHEMICAL Natural toxins	Yes	Natural toxins and organisms that produce them can be filtered and concentrated by shellfish or shellstocks.	Only accept shellfish or shellstocks from waters open to harvesting. Require proper tagging.	Yes
Refrigerated storage	PHYSICAL None	No			No
	BIOLOGICAL Bacterial pathogen contamination	Yes	Pathogens may increase in number if shellfish or shellstocks are not properly refrigerated.	Maintain refrigerated at 41°F or below.	Yes
	CHEMICAL Chemical contamination	No			
Preparation (Thawing frozen shellstock)	PHYSICAL None	No			
	BIOLOGICAL Bacterial pathogen contamination	Yes	Pathogens may increase in number if shellstocks are not properly refrigerated.	Thaw only under refrigerated storage or controlled flowing water of 70°F. Product not to exceed 41°F.	Yes
	CHEMICAL Chemical contamination	No			
PHYSICAL None	No				

( 1 ) Processing Step	( 2 ) Potential hazards B=Biological P=Physical C=Chemical	( 3 ) Are hazards significant? (Yes/No)	( 4 ) Justify your decision for column 3	( 5 ) What control measures can be applied to prevent the significant hazards?	( 6 ) Is this step a critical control point (CCP)? (Yes/No)
Refrigerated display	BIOLOGICAL Bacterial pathogen contamination CHEMICAL Chemical contamination PHYSICAL None	Yes	Pathogens may increase in number if shellfish or shellstocks are not properly refrigerated.	Maintain refrigerated product at 41°F or below.	Yes
Point of sale	BIOLOGICAL Bacterial pathogen contamination CHEMICAL Chemical contamination PHYSICAL None	No No No	Pathogens may increase in number if shellfish or shellstocks are not properly refrigerated.	Maintain refrigerated product at 41°F or below.	No. Customer has ownership of product at point of sale
Establishment Name:		Product Description:			
Establishment Address:		Storage and Distribution:			
Supervisor:		Date:			

# HACCP Plan for Shellfish & Shucked Shellstock

Critical Control Point	Significant Hazard	Critical Limits for Each Preventive Measure	Monitoring Procedures				Corrective Actions	Verification Activities	Records
			What	How	Frequency	Who			
Receiving	Pathogens from harvest area, environmental chemical contaminants and pesticides	All shellfish and shellstock must be tagged. All shellfish and shellstock must originate from ICSSL establishments.	Shellstock tags Harvest site on tags	Visual Visual	Every shipping container Every delivery	Receiving employee Receiving employee	Weekly review of monitoring and corrective action records Reject untagged containers. Reject lots from unapproved waters.	Receiving log Receiving log	
Refrigerated storage	Bacterial pathogen growth	Product temperature not to exceed 41°F for more than two hours.	Refrigerated storage temperature	Visual check of continuous thermometer or with calibrated hand-held thermometer.	Every four hours during operation	Seafood Department Personnel	Daily record review Weekly thermometer calibration	Cooler temperature record Recorder chart	
Thawing	Bacterial pathogen growth	Product temperature not to exceed 41°F for more than two hours.	Product temperature	Determine product internal temperature with calibrated thermometer.	Every two hours during thawing	Seafood Department Personnel	Daily record review Weekly thermometer calibration	Cooler temperature record Recorder chart	
Refrigerated display	Bacterial pathogen growth	Product temperature not to exceed 41°F for more than two hours.	Product temperature	Determine product internal temperature with calibrated thermometer.	Every four hours during operation	Seafood Department Personnel	Daily record review Weekly thermometer calibration	Refrigerated display case temperature record Recorder chart	
Shellstock tag retention	Pathogens from harvest area, environmental chemical contaminants and pesticides	All shellstock tags must be retained in chronological order for 90 days from the date the container is emptied.	Shellstock tags records	Visual	Every shipping container	Seafood Department Personnel	Daily record review Remove displayed product missing corresponding tags. Obtain copy of missing tags. Arrange tags in chronological order.	Shellstock tag log	
Supervisor:	Date:								

## Sample Temperature Log

Date	Equipment	9:00 AM	12:00 M	3:00 PM	Signature
	Storage				
	Display				
	Storage				
	Display				
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Signed \_\_\_\_\_ Date \_\_\_\_\_

## Glossary

**Certification number** – The unique identification number issued by the shellfish control authority to a molluscan shellfish dealer according to the provisions of the National Shellfish Sanitation Program (NSSP). Each certification number consist of a one to five digit Arabic number proceeded by the two letter State abbreviation.

**Comingle or Commingling** – The process of combining different lots of shellstock or shucked shellfish.

**Critical Control Point (CCP)** – A point or procedure where loss of control may result in a health risk.

**Critical limit** – The maximum or minim value to which a physical, biological or chemical parameter must be controlled at a critical control point to prevent, eliminate or reduce to an acceptable level the occurrence of the identified food safety hazard.

**First In, First Out (FIFO)** – The rotation of stored items (food, packaging materials, ingredients, single-service items etc.) so that all the oldest items are used first. Always rotate in accordance with the manufacturer’s expiration code.

**Good Retail Practices (GRP)** – A collection of best practices for processing, storing, handling and displaying food.

**HACCP** – Hazard Analysis and Critical Control Point is a technique of looking at an entire food process and focusing on the critical control points to prevent unwanted health risks.

**Interstate Certified Shellfish Shippers List (ICSSL)** – A FDA publication of shellfish dealers, domestic and foreign, who have been certified by a state or foreign authority as meeting the public health control measures specified in the National Shellfish Sanitation Program (NSSP).

**Lot of shellstock** – A single type of bulk shellstock or containers of shellstock of no more than one day’s harvest from a single defined growing area gathered by one or more harvesters.

Lot of shucked shellfish – A collection of containers of no more than one day's shucked shellfish product produced under conditions as nearly uniform as possible, and designated by a common container code or marking.

National Shellfish Sanitation Program (NSSP) – The cooperative State-FDA-Industry program for the sanitary control of shellfish that is adequate to ensure that the shellfish produced are safe and sanitary.

Potentially hazardous food (PHF) – Foods that are extra sensitive to contamination and need special care when being stored, handled and prepared because germs will easily grow and multiply on them. They include meats, poultry, pork, fish and fish products, milk and dairy products and eggs. Food safety demands that food handlers observe strict sanitation and time/temperature control rules when working with these foods.

ppm – Parts per million. A measurement used to determine sanitizer concentrations.

Ready-to-eat (RTE) – Food that does not require washing, cooking or additional preparation before eating.

## Reference

- American Public Health Association. *Control of Communicable Diseases in Man*, 16th ed., 1995.
- Bryan, Frank. “Hazard Analysis of Food Service Operation.” *Food Technology*, February 1981, pp. 78-87.
- Bryan, Frank. “Hazard Analysis Critical Control Point Approach: Epidemiologic Rationale and Application to Food Service Operations.” *Journal of Environmental Health*, August 1981, pp. 7-14.
- Bryan, Frank. “Factors that Contribute to Outbreaks of Foodborne Disease.” *Journal of Food Protection*, October 1978, pp. 816-827.
- Centers for Disease Control and Prevention (CDC). *Diseases Transmitted by Foods*, 2nd ed., USPHS, 1982
- CDC, *Foodborne Disease Outbreaks, 5 Year Summary*, Morbidity Mortality Weekly Report. #39, USPHS, March 1990, pp. 15-57
- Corlett, D.A. and Pierson, M.D. *HACCP, Principles & Applications*, Chapman and Hall, New York, 1992.
- Fellows, P.J. *Food Processing Technology, Principles and Practice*, Ellis Horwood, New York, 1990.
- Fennema, O.R. *Food Chemistry*, 2nd ed., Marcel Dekker, Inc., New York, 1985.
- Food and Drug Administration (FDA), 2000, “Draft Risk Assessment on the Public Health Impact of *Vibrio parahaemolyticus* in Raw Molluscan Shellfish.”
- FDA, “Fish and Fishery Products Hazards and Controls Guide”, 3rd Edition, June 2001
- FDA, *Food Code*.
- FDA, “Interstate Certified Shellfish Shippers List” (available at Web site <http://www.fda.gov>)
- FDA, “Sanitation, National Shellfish Sanitation Program Manual of Operations, Part II.”
- Foodborne Diseases*, ed. by Cliver, Academic Press, San Diego, California, 1990.
- Interstate Shellfish Sanitation Conference Issue Relating to a *Vibrio vulnificus* Risk Management Plan for Oysters, 2000.
- National Advisory Committee on Microbiological Criteria for Foods (NACMCF). 1992. “Hazard Analysis and Critical Control Point System.” DHHS/PHS/FDA.
- Jay, J. M. *Modern Food Microbiology*, 5th ed., Van Nostrand Reinhold, New York, 1996.
- Potter, N. *Food Science*, 4th ed., Van Nostrand Reinhold, New York, 1986.
- Title 21 Code of Federal Regulation Part 123 – Fish and Fishery Products

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